DETERMINANTS OF OVERSUBSCRIPTIONS OF INITIAL PUBLIC OFFERINGS (IPOs) IN MALAYSIA

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ABSTRACT

The main objective of this thesis is to examine the factors influencing oversubscription of initial public offerings (IPOs) in Malaysia. This study proposes eight pre-listing information variables, namely growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* equity requirement, *Shariah*-compliant status, revised *Shariah*-compliant guidelines, cash, debt and pricing mechanism. The focus on such variables is motivated by the fact that the Malaysian market has different institutional and legal settings which might influence the oversubscription phenomenon. In formulating the hypotheses, signalling, agency and winner's curse theories are relied upon. Multiple regression analyses were carried out to test the relationship between oversubscription and independent variables based on 410 IPOs listed on Bursa Malaysia during the period 2000 to 2015. This study shows that the utilisation of proceeds for investment purposes (growth opportunity) has a positive influence on investors subscribing to the IPOs. Meanwhile, the 30% *Bumiputera* equity requirement policy also is observed to have had a positive influence on oversubscription rate. It is believed that the issuers offer their IPOs at a larger discount in order to attract *Bumiputera* investors. However, the reverse occurs when the Government relaxed the requirements from 30% to 12.5%, effective July 2009, which reduced the oversubscription of IPOs. Besides, *Shariah*-compliant status and revised *Shariah*-compliant guidelines show a positive influence on oversubscription as the shares could be distributed to a wider group of investors. In addition, cash and debt are noted to have negative influence on oversubscription. However, the mix mechanism does not affect oversubscription. The findings of this study provide useful insights to an issuer to assure good subscription of its issuance as these indicators are available in the prospectus. For investors, information from this study would enable them to make better investment decisions when subscribing to IPOs, particularly the retail investors.

Keywords: oversubscription, book-building mechanism, bumiputera equity requirement, shariah-compliant status, pricing mechanism

ABSTRAK

Objektif utama tesis ini adalah untuk mengkaji faktor-faktor yang mempengaruhi terlebih langganan ke atas tawaran awam awal (TAA) di Malaysia. Kajian ini mencadangkan lapan maklumat pra-penyenaraian, iaitu peluang pertumbuhan, pemilikan saham Bumiputera, perubahan dalam garis panduan pemilikan saham Bumiputera, status patuh Syariah, perubahan dalam garis panduan patuh Syariah, tunai, hutang dan mekanisma harga. Tumpuan kepada pemboleh ubah tersebut didorong oleh fakta bahawa pasaran Malaysia mempunyai tetapan institusi dan undang-undang yang berbeza yang mungkin mempengaruhi fenomena terlebih langganan. Dalam pembentukan hipotesis, teori isyarat, agensi, aliran tunai dan sumpahan pemenang telah digunakan. Analisis regresi berganda dijalankan untuk menguji hubungan antara terlebih langganan dan pembolehubah bebas berdasarkan 410 TAA yang disenaraikan di Bursa Malaysia dari tahun 2000 hingga 2015. Kajian ini menunjukkan bahawa penggunaan dana untuk tujuan pelaburan (peluang pertumbuhan) mempunyai pengaruh positif kepada para pelabur dalam melanggan TAA. Sementara itu, dasar keperluan 30% saham Bumiputera mempunyai pengaruh positif terhadap kadar terlebih langganan. Adalah dipercayai bahawa penerbit telah menawarkan diskaun yang lebih tinggi ke atas TAA mereka untuk menarik pelabur-pelabur Bumiputera. Walaubagaimanapun, perkara sebaliknya berlaku apabila Kerajaan melonggarkan keperluan daripada 30% saham Bumiputera kepada 12.5%, berkuatkuasa pada bulan Julai 2009, yang mana telah mengurangkan lebihan langganan TAA. Di samping itu, status patuh Syariah dan perubahan dalam garis panduan patuh Syariah mempunyai pengaruh positif terhadap terlebih langganan kerana saham itu boleh diedarkan kepada kumpulan pelabur yang lebih luas. Selain itu, tunai dan hutang mempunyai pengaruh negatif ke atas terlebih langganan. Walaubagaimanapun, mekanisme campuran tidak mempengaruhi terlebih langganan. Penemuan kajian ini mengutarakan pandangan yang berguna kepada penerbit untuk memastikan langganan yang baik dalam penerbitannya kerana indikator ini tersedia di dalam prospektus. Bagi pelabur, maklumat daripada kajian ini akan membolehkan mereka membuat keputusan pelaburan yang lebih baik apabila melanggan TAA, terutamanya untuk pelabur runcit.

Kata kunci: terlebih langganan, saham bumiputera, status patuh syariah, mekanisma harga

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LIST OF ABBREVIATIONS/NOTATIONS/GLOSSARY OF TERMS

Terms	Definition
ACE	Access, Certainty and Efficiency
ASB	Amanah Saham Bumiputera
BEQ	Bumiputera equity ownership
BHAR	Buy-and-hold Abnormal
BPG	Breusch-Pagan-Godfrey
BSE	Bombay Stock Exchange
BUMI Δ	Revised *Bumiputera* regulatory requirement
CAPEX	Capital Expenditure
CR	Cash Ratio
Cook's	aggregate measure that shows the effect of the i-th observation on the fitted values for all *n* observations.
CV	Control variable
DBOARD	Dummy listing board
DCRISIS	Dummy financial crisis
DEBT	Debt ratio
DFITS	Difference between the predicted responses from the model constructed from all of the data and the predicted responses from the model constructed by setting the i-th observation aside.
DJIM	Dow Jones Islamic Market
DMECHANISM	Dummy pricing mechanism
DR	Debt Ratio
DV	Dependent variables
DSHARIAH	Dummy Shariah-compliant status
DRETURN	Dummy Initial Return
DW	Durbin Watson
e.g.	"for example"
Et al.	"and others"
Etc.	"and so on"
EMU data	Eastern Michigan University
EMU countries	European Monetary Union
EPP 1	Entry Point Project 1
EPF	Employee Provident Fund
ESDAQ	European Association of Securities Dealers Automated Quotation
EuroNM	European exchanges dedicated to promoting growth companies
FIC	Foreign Investment Committee
FTSE	Financial Times Stock Exchange
FDI	Foreign Direct Investment
G-7	Group of seven industrialized nations
GLC	Government Link Corporation

GMM	Generalized Method of Moments
GOP	Growth opportunity
ICMD	Islamic Capital Market Department
IISG	Islamic Instrument Study Group
i.e.	clarification
IPO	Initial Public Offerings
IVs	Independent variables
IR	Initial return
JB	Jarque Bera
KLCI	Kuala Lumpur Composite Index
KLSE	Kuala Lumpur Stock Exchange
KLSI	Kuala Lumpur Shariah Index
KWAP	Retirement Fund Incorporated
MESDAQ	Malaysia Exchange of Securities Dealing and Automated Quotation
MIFC	Malaysia International Islamic Financial Centre
MIH	Malaysian Issuing House
MITI	Ministry of International Trade and Industry
MKTCON	Market condition during IPO listing
NASDAQ	American stock exchange
NAV	Net asset value
NEP	New Economy Policy
NOSHI	Number of share issues
NPV	Net present value
NSE	National Stock Exchange, Mumbai
NYSE	New York Stocks Exchange
OLS	Ordinary least square
OSR	Oversubscription ratio
PDS	Private Debt Securities
P/E multiples	Price earnings multiples
P/E ratios	Price earnings ratios
P^{offer}	Offer price
PNB	Permodalan Nasional Berhad
PRIVATE	Private Placement or Institutional Investor
PRE-IPO MKTCON	Market condition prior IPO listing
REITS	Real Estate Investment Trust
RESET	Regression Specification Error Test
RETAIL	Retail Investor
R&D	Research and Development
SAC	Shariah Advisory Council
SC	Securities Commissions
SEC	Securities and Exchange Commission
SEO	Seasoned equity offerings
SHARIAH Δ	Revised *Shariah*-Compliant Regulatory Requirement
SI	*Shariah*-compliant index
SIZE	Natural logarithm of the offer size
S&P	Standard & Poor's

SPAC	Special Purpose Acquisition Company
SUB	Times Subscribed
TASE	Tel Aviv Stock Exchange
TH	Tabung Haji
TIIH	Tricor Investor & Issuing House Service
UK	United Kingdom
US	United States
USD	United States Dollar
VIF	Variance Inflation factor

CHAPTER ONE

INTRODUCTION

1.1 Research Background

Initial Public Offerings (IPOs) are an alternative way of raising funds for companies in order to avoid debt. Compared to debts such as bonds, IPOs do not have maturity dates and no interest payments are incurred. Furthermore, IPOs can improve the public image of the company. This is evident from the increase in the number of IPOs issued, from eight companies in 1974 to 904 companies in 2016 (Bursa Malaysia, 2017). Mikkelson, Partch, and Shah (1997) pointed out that through public listing, a company is able to raise funds for investment purposes. On the other hand, Pagano, Panetta, Zingales, and Luigi (1998) emphasised that the amount raised from IPO proceeds is determined by the need to exploit growth opportunities and reduce leverage. Therefore, for the issuer, IPOs would be the preferred funding mechanism that provides several benefits for the company. Moreover, the greater the underpricing of the IPOs, the higher the demand from investors, thus the larger the increase in subscriptions and subsequently, higher initial returns. As raising funds is the main consideration, it is vital to examine factors that attract investors to subscribe to IPOs, because the most challenging task is to ensure that these issues are fully subscribed.

In general, if the market is healthy, an IPO would normally be oversubscribed by investors. In Malaysia, research by Dawson (1987), Low and Yong (2011), Taufil-Mohd (2007), and Yong and Isa (2003) found that oversubscription rates were 44.00, 33.59, 41.14, and 43.71 times, respectively. Oversubscription, which could be interpreted as investor demand, is a pertinent factor in the success of an IPO due to its role in affecting IPO aftermarket performance (Chowdhry & Sherman, 1996a; Low &

Yong, 2011). The question raised here is, what are the factors that influence oversubscription of IPOs? Normally, investors would invest in a company that is competitive and has growth potential (Bhabra & Pettway, 2003). This is in line with Rajan and Servaes (1997) who noted that during listing, firms with high growth opportunities are able to raise funds easily from IPOs due to the quality of IPOs. While Chung, Li, and Yu (2005) were of the view that if investors are optimistic of the competitiveness and future growth potential of a particular IPO, it would increase investor's interest to subscribe to the IPO. In other words, in issuing an IPO, the growth potential is important for a company to attract investors and analysts. Growth opportunities indicate that a firm is expanding and increasing its market share. Growth thus ensures that a firm can compete in its market. Therefore, growth opportunity is key to be profitable and successful, and thus a critical factor in attracting investors to subscribe to IPOs.

Based on the literature, there are different levels of oversubscription observed in different countries which denotes that there might be certain unique features associated with each country that may affect the performance of IPOs (Loughran, Ritter, & Rydqvist, 1994; Taufil-Mohd, 2007). According to Loughran *et al*. (1994) and Taufil-Mohd (2007), institutional differences in pricing and allocation of shares play an important role in explaining the performance of IPOs in each country. The Malaysian IPO market has certain distinct features as compared to that of other countries. These features are in the form of IPO pricing mechanism, share allocation to *Bumiputera*[I]

[I] The term *Bumiputera* refers to the *Malay* ethnic group or certain indigenous groups such as the *Orang Asli*, natives of Sabah and natives of Sarawak (Federal Constitution of Malaysia, 2010).

investors, *Shariah*-compliant status, and share moratorium[II]. Given these institutional differences in Malaysia, they may influence the oversubscription phenomenon.

This study was undertaken because most studies, either in developed or developing countries, focused more on underpricing of IPOs. It was noted that thus far only Low and Yong (2011) had examined factors that explain the oversubscription anomaly in the Malaysian market. Nonetheless, the number of factors were limited to variables related to a firm's actions during the IPO process, such as investor enthusiasm, IPO volume, opportunity cost of funds, and offer price. This study postulated there were several factors that should be analysed to understand the phenomenon of oversubscription of IPOs. Furthermore, to the best of the researcher's knowledge and the literature reviewed, there are no conclusive findings on the influence of growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism on oversubscription.

1.2 Malaysian Market

In Malaysia, there has been an increase in the ringgit volume of IPOs due to mega IPO listings such as Maxis, Petronas Chemical, Felda Global Venture, IHH Healthcare, and Astro. In 2012, Malaysia was the fifth largest IPO issuing country in the world (Bursa Malaysia, 2012). Malaysia was rated one of the most attractive investment destinations in Asia in 2013, having obtained funding totalling USD7,046.90 million through IPOs

[II] The restriction on disposal of new issues or IPOs by the owners is referred to as share moratorium in Malaysia. In the US, the term lock-up provision is used. Share moratorium imposes a ban on selling or transferring a fraction of the shareholding by the promoters of the IPO over a pre-determined length of time. The excessive immediate sale of IPOs needs to be restricted due to the potential adverse effects on the IPO's price in the aftermarket. This is one of the reasons that led the Securities Commission to impose a mandatory lock-up provision or share moratorium on the promoters.

(Bursa Malaysia, 2013). This shows that the IPO market in Malaysia is attractive and robust. During the period 2000 to 2016, 552 IPOs were listed in Bursa Malaysia. Figure 1.1 shows the number of *Shariah*-compliant IPOs, the number of total IPOs, and the average oversubscription ratio over the period 2000 to 2016.

The total issuance of IPOs fell dramatically from 38 in 2000 to 20 in 2001 due to the uncertain direction of the global economy and consequences of the September 11 attacks. The passive investment sentiment was reflected in the undersubscription of some IPOs and subsequently this resulted in the average oversubscription ratio being reduced from 33 times to four times. The number of *Shariah*-compliant IPOs also decreased from 32 to 15. During the period from 2002 to 2005, strong economic fundamentals led to an increase in IPOs and the total number of IPOs rose from 51 to 79, while the average number of oversubscriptions ranged between 16 times to 29 times. The number of *Shariah*-compliant IPOs also increased from 41 to 63.

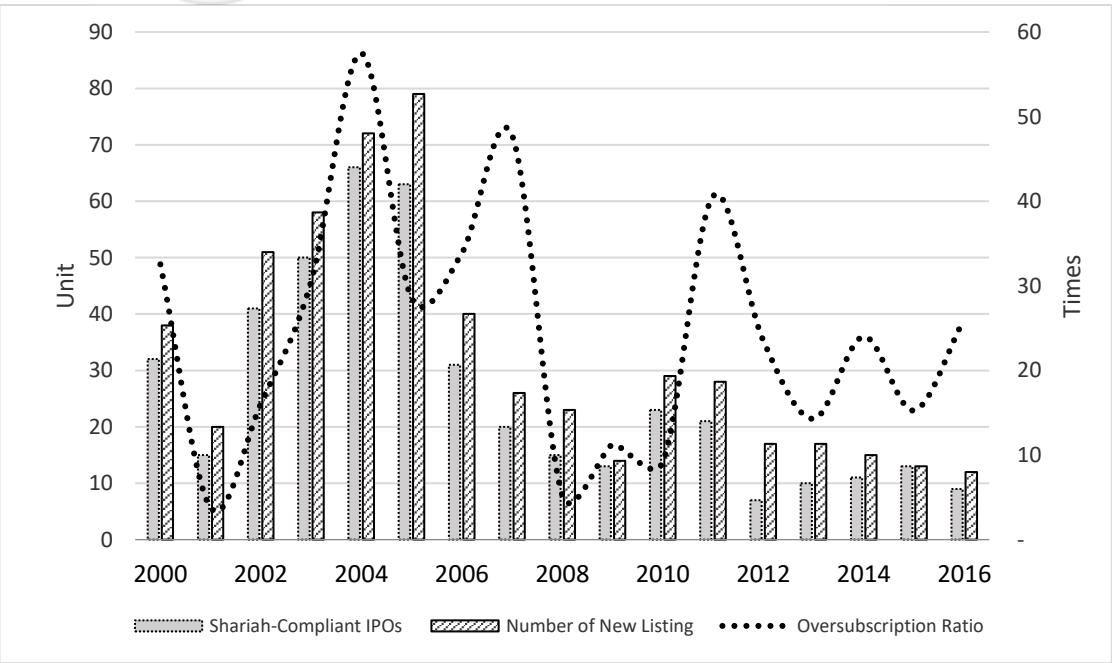

Figure 1.1
Number of Shariah-compliant IPOs, number of IPOs and average oversubscription ratio of IPOs.
Source: Bursa Malaysia

However, the issuance of IPOs decreased during the years 2006 to 2010 from 40 to 29, and the number of *Shariah*-compliant IPOs also reduced from 31 to 23. Likewise, the average oversubscription ratio declined from 34 times to nine times due to global financial crisis (sub-prime) that impacted the Malaysian economy. Though the market recovered during the period 2011 to 2016, the number of IPOs witnessed a steady fall from 28 to 12 and the number of *Shariah*-compliant IPOs decreased from 21 to 9. Similarly, the average oversubscription ratio also reduced from 28 times to 26 times. Despite the decreasing trend, in terms of volume or proceeds, it was the largest in Asia during this period due to mega IPO listings (Bursa Malaysia, 2013). Overall, the number of *Shariah*-compliant IPOs was still higher than non-*Shariah* IPOs for the period from 2000 to 2016, except in 2012. *Shariah*-compliant IPOs accounted for about 80 percent of the total IPOs for the said period. Though oversubscription ratios fluctuated during this period, they were still prevalent. Therefore, there was a need to examine this anomaly and determine if *Shariah*-compliant IPOs affect oversubscription ratios of IPOs.

Table 1.1 summarises the initial returns or underpricing of IPOs, and returns on alternative *Shariah*-compliant investments. ASB is the rate of return offered by *Amanah Saham Bumiputera* (*Bumiputera* Unit Trust) while TH is the rate of return given by *Lembaga Tabung Haji* (Pilgrims Fund Board) to its depositors. Based on Table 1.1, it is evident that IPOs provide high average annual returns as compared to both ASB and TH, except in 2008 when the global sub-prime crisis occurred and the IPOs produced negative initial returns of 20.83 percent. It is clear that the IPO market continues to give attractive investment returns to investors. Thus, there is a need to examine factors that influence oversubscription of IPOs, which is an important factor

in the success of IPOs. To be able to do this, it is important to understand the structure of the Malaysian stock market, given that each stock market has its own attributes that may affect the performance of IPOs (Loughran *et al*., 1994). The institutional aspects of Malaysian IPOs vary from other markets, especially *Bumiputera* equity ownership and *Shariah*-compliant status. The regulated *Bumiputera* equity requirement in 1976 appeared effective as it increased *Bumiputera* participation in the equity market and acted as a tool to redress the wealth imbalance of various ethnic groups. The Malaysian government remains committed to enhancing economic participation by *Bumiputera* investors in line with the New Economic Policy (NEP). As for *Shariah*-compliant status, it is important to attract Muslim investors as they are forbidden from undertaking any activity that is not in line with the religious or *Shariah* principles. Furthermore, it is the government's aspiration to enlarge the role of Islamic finance and make Malaysia a hub for the Islamic capital market.

Table 1.1
Average Initial Returns of IPOs, ASB and TH

Years	IPO (%)	ASB (%)*	TH (%)*
2000	64.22	11.75	5.50
2001	29.17	10.00	3.25
2002	18.37	9.00	3.50
2003	44.57	9.25	4.00
2004	40.69	9.25	4.30
2005	16.54	9.00	4.50
2006	22.48	8.55	4.75
2007	33.71	9.00	7.00
2008	-20.83	8.75	5.00
2009	13.56	8.55	5.00
2010	9.05	8.75	5.50
2011	19.5	8.80	6.00
2012	37.31	8.90	8.00
2013	22.16	8.70	8.00
2014	14.33	8.50	8.25
2015	28.68	7.75	8.00
2016	16.68	7.25	5.75
Average	**24.13**	**8.93**	**5.66**

Sources: Astro Awani; Permodalan Nasional Bhd (PNB);
Securities Commission (SC); Tabung Haji (TH);
* Dividend plus Bonus.

The essential elements that depict the distinct nature of Malaysian IPOs are allocation of shares to *Bumiputera*, *Shariah*-compliant status and pricing mechanism. Thus, this study examined the role of the changes in *Bumiputera* equity requirement, *Shariah*-compliant status and pricing mechanism on oversubscription, which are discussed in Section 1.2.1, 1.2.2, and 1.2.3.

1.2.1 *Bumiputera* Equity Requirement

The Malaysian IPO market could be significantly differentiated from other global markets due to the 30 percent *Bumiputera* equity requirement for firms that go for listing. It became mandatory in 1976 for any company seeking a listing in the then Kuala Lumpur Stock Exchange (KLSE), now currently known as Bursa Malaysia, to allocate 30 percent of the total issued shares upon floatation for *Bumiputera* (Refer to Appendix A). This effort was initiated by the government to increase *Bumiputera* participation in the equity market, in line with the New Economic Policy (NEP), which was introduced in 1970. The objectives of the NEP included poverty eradication irrespective of ethnicity and economic restructuring to remove identification of ethnicity with economic function. The NEP further sought to improve business ownership of *Bumiputera*, and increase their participation in the corporate sector and economy to 30 percent by the end of 1990 from 2.4 percent in 1970.

The *Bumiputera* equity requirement could be fulfilled through share ownership in the corporate sector by *Bumiputera*-controlled investment companies or *Bumiputera* investors. The main objective is to improve *Bumiputera* participation in the equity market and consequently the economic well-being of this indigenous group. The balloting process of IPOs to *Bumiputera* investors takes place prior to balloting for the

Malaysian public. The unsuccessful *Bumiputera* applications would then be placed for balloting to the Malaysian public. Based on Table 1.2, *Bumiputera* shareholding increased from only 2.4 percent in 1970 to 19.3 percent in 1990. However in 2004, *Bumiputera* shareholding decreased to 18.7 percent, though the value of the shares increased to RM73.2 billion compared to RM20.9 billion in 1990. In 2008, *Bumiputera* shareholding increased to 21.9 percent worth RM127.08 billion.

Table 1.2
Total Bumiputera equity ownership during the period 1970 to 2008

NEP Benchmarks	**1970**	**1990**	**2004**	**2008***
Bumiputera Equity Ownership	2.40% (RM477 million)	19.30% (RM20.9 billion)	18.70% (RM73.2 billion)	21.90% (RM127.04 billion)

Sources: Centre for Public Policy Studies, 2005.
* Refer to Appendix B

The government continuously revised the *Bumiputera* equity requirement policy. The announcement of the abolition of the 30 percent *Bumiputera* equity requirement by the Prime Minister of Malaysia on 22 and 27 April 2009 reflected the government's efforts to make the market more competitive (Invest Malaysia, 2009). Following that, on 30 June 2009, the Prime Minister of Malaysia revealed the new equity liberalisation measurement, especially for listing requirements involving *Bumiputera* equity (Refer to Appendix C). Presently, under the Bursa Malaysia Listing Rules, it is mandatory for all corporations seeking listing in the Main Market to achieve the 25 percent public spread requirement. Subsequent to this announcement, at the point of listing, the SC required 50 percent of the 25 percent public spread requirement to be allocated to *Bumiputera.* This means that the issuer or corporation seeking a listing in the Main Market must allocate a minimum of 12.5 percent of their enlarged issues and paid-up share capital for *Bumiputera* investors. Thus, this government intervention (*Bumiputera* equity requirement policy) could possibly encourage more investors to

subscribe to the IPOs (Ariff & Shamsher, 1999; How, Jelic, Saadouni, & Verhoeven, 2007; Prasad, Vozikis, & Ariff, 2006; Taufil-Mohd, 2007).

1.2.2 *Shariah*-Compliant Status

Generally, the *Shariah*-compliant status indicates that the company's activities are free of non-permissible conduct, such as interest-based transactions, unethical elements, and doubtful transactions. In other words, the income generated by the companies from their primary business and investment activities must be in line with *Shariah* principles. In 1995, the Islamic Capital Market Department (ICMD) of the SC initiated a study with the establishment of an Islamic Instrument Study Group (IISG). The ICMD then established the *Shariah* Advisory Council (SAC)[III] to replace IISG. Beginning June 1997, the SAC introduced the *Shariah*-compliant securities list and approximately 57 percent of the shares listed have *Shariah*-compliant status (Securities Commission, 2007). The SAC constantly updates the list twice a year, that is, in May and November of every year.

In August 2006, the Malaysian International Islamic Financial Centre (MIFC) was established with the objective of making Malaysia the leader in global Islamic finance. It was also a significant step in developing the Malaysian financial market from the Islamic perspective. The increased sense of awareness among Muslim investors to invest their excess funds in the equity market becomes a push factor for the SC, Bursa

[III] In 1996, the SC introduced the SAC for the screening process of products. The SAC advises the SC on Islamic Capital Market operations in Malaysia such as appraisal of capital market instruments and evaluation of listed companies' activities in Bursa Malaysia. The SAC is also responsible for ensuring the Islamic Capital Market operations and the securities traded in Bursa Malaysia fulfill the *Shariah* principles. Furthermore, the SAC is responsible for scrutinizing the activities of listed companies, as the scope of business might involve non-halal activities, merger and acquisition exercises and change in their method of operation. The screening methodology has been developed and accepted by the eminent Islamic jurisprudence and practiced by most financial institutions.

Malaysia, and the Malaysian government to introduce Islamic equity security. As mentioned earlier, this is because Muslims are forbidden to undertake any activity that is not in line with the religious or *Shariah* principles. If one was to look at the potential of Islamic products, such as unit trust funds, the demands for such products has been increasing rapidly, which is illustrated in Table 1.3 and Figure 1.2.

Table 1.3
NAV of Islamic and Conventional Unit Trust (in billion of RM)

Year	Islamic-based	Conventional	Total	NAV to Market Capitalisation (%)
2004	9.76	80.62	90.39	12.10
2005	8.49	90.00	98.49	14.17
2006	9.10	112.31	121.41	14.31
2007	16.79	151.24	168.03	15.19
2008	16.12	114.32	130.44	19.65
2009	22.08	169.63	191.71	19.18
2010	24.04	202.77	226.81	17.79
2011	27.86	221.60	249.46	19.42
2012	35.36	259.49	294.85	20.12
2013	42.82	292.69	335.51	19.71
2014	46.66	296.36	343.02	20.77
2015	52.12	294.45	346.58	20.45
2016	60.92	297.56	358.47	21.50

Source: Securities Commision Malaysia, 2017

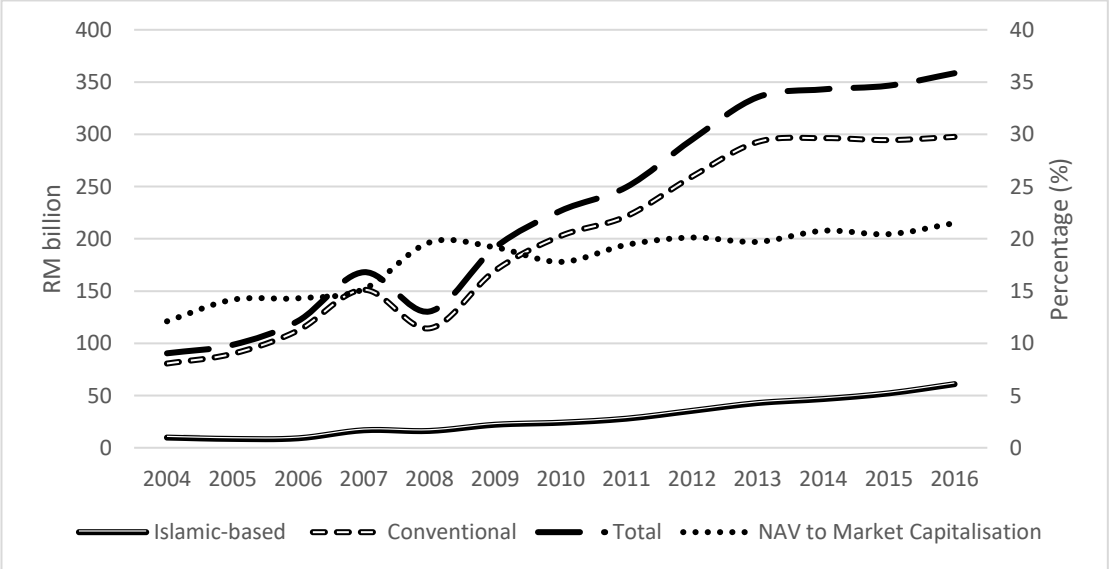

Figure 1.2
Net Asset Value of Unit Trust
Source: Securities Commission Malaysia, 2017

The total net asset value (NAV) of unit trust funds grew steadily from 2004 onwards. Specifically, the Islamic unit trust industry in Malaysia has been experiencing a robust growth in terms of NAV. The NAV of Islamic unit trusts increased 18.03 percent annually from RM9.76 billion in 2004 to RM60.92 billion in 2016, constituting an average of 21.50 percent of the NAV of the total unit trust industry in 2016, as shown in Figure 1.2. As demand for Islamic financial products such as Islamic unit trusts and *Shariah*-compliant IPOs increases, there is a need to study *Shariah*-compliant status and its effect on investor demand (oversubscription) for the IPOs.

1.2.3.1 Establishing Benchmark for *Shariah*-Compliant Securities

The status of companies undertaking both permissible and non-permissible activities was discussed by the SAC at its second meeting on 21 August 1996. The SAC decided that companies with a certain level of non-permissible components, which did not breach the benchmark set by the SAC, would be included in the *Shariah* compliant list. The basis for establishing the benchmark was to determine the status of such companies as *Shariah*-compliant securities and this could be viewed as a pre-emptive measure (*ihtiyat*). It is important to have a specific benchmark to ensure that non-permissible elements are minimal and are tolerated by *Syara*. That means the non-permissible elements would not affect the permissible elements, which are bigger and more important (Securities Commission, 2007).

The development and growth of Islamic finance motivated the SAC to revise the screening methodology on 18 June 2012, including the benchmark for determining *Shariah*-compliant status. The SAC introduced financial ratio benchmarks and implemented a two-tier approach for business activity. Nevertheless, the qualitative

assessment was maintained. The overall income and pre-tax profits of the company from *Shariah* non-compliant activities would be calculated and compared to the related business activity benchmark. The measurement took effect on 29 November 2013, shown in Table 1.4. The robustness of the screening for listed securities is enhanced with the streamlining of the business activity benchmark and inclusion of the financial ratio benchmarks (Refer to Appendix D). Companies with combined activities, which were previously assessed under 10 percent and 25 percent benchmarks, could possibly be affected because currently they are assessed under the 5 percent and 20 percent benchmarks.

Table 1.4
The Revised of Shariah Screening Methodology

Previous Criteria 21/08/1996 to 28/11/2013	**Shariah Screening Methodology**	**Current Criteria 29/11/2013 until present**
Applicable	1. Qualitative assessment i. Image of the company ii. *Maslahah, 'umum balwa, 'uruf* etc.	Still applicable
Benchmark	2. Quantitative assessment	Benchmark
5%	Conventional insurance; conventional banking; liquor and liquor-related activities; gambling; Shariah non-compliant entertainment; pork-related activities; Non-halal food and beverages; and other activities deemed non-compliant according to Shariah.	}5%
10%	Tobacco and tobacco-related activities; interest income from conventional accounts and instruments; and other activities deemed non-compliant according to Shariah.	
20%	Rental received from Shariah non-compliant activities; and other activities deemed non-compliant according to Shariah.	}20%
25%	Stockbroking business; share trading; hotel and resort operations; and other activities deemed non-compliant according to Shariah	
Not applicable	Newly introduced financial ratios benchmark i. Cash over total asset ii. Debt over total asset	Both ratios must be lower than 33%.

Source: Securities Commission Malaysia, 2012

Furthermore, companies with higher conventional debt could also possibly be affected because previously there was no screening based on the total conventional debt of the company and cash invested in conventional accounts. The new benchmark would ensure that the company's income is safe from non-permissible activities and the investment is within a reasonably acceptable level to *Syara.* The introduction of two financial ratios made the *Shariah*-compliant status to become more stringent. These financial ratios are cash over total assets and debt over total assets. The ratios determine *riba* based on the elements within the company's balance sheet and financial health of the company. The resultant percentage ratio must be below 33 percent (Securities Commission Malaysia, 2012). This percentage is based on a *hadith* narrated by Al-Bukhari and Muslim (Refer to Appendix E).

By having this new requirement, Malaysia would be at par with the screening processes around the world, as the new requirement are aligned to the international standards, as shown in Table 1.5. This feature makes Malaysian IPOs unique and thus expected to attract foreign investors to Malaysia, since the client-base spectrum of *Shariah*-compliant securities has been widened to attract Middle Eastern investors. This would potentially spur a greater inflow of foreign funds (Securities Commission Malaysia, 2012).

Table 1.5
Comparison between Securities Commission Malaysia and Dow Jones Islamic Market

Type	Securities Commission Malaysia	Dow Jones Islamic Markets
Scope	Malaysian Stocks	Global Stocks
Screener	Regulator	Index Provider
Focus	Activity-based benchmarks	Industry Screen
Denominator	Total Assets	Market Capitalization
Discretion	Qualitative Stage of Screening	Not Applicable
Financial Ratios	Total Debt / Total Assets	Total Debt / Market Cap
	Total Cash / Total Assets	Cash + interest bearing securities / Market Cap
		Receivables / Market Cap

Sources: Securities Commission Malaysia, Dow Jones Islamic Market, MIFC

1.2.3 Pricing Mechanism

Pricing mechanism is one of the distinct features in Malaysian IPOs and it is regulated by the SC. The liberalisation of the pricing mechanism of IPOs is an initiative to enhance the efficiency and transparency of the Malaysian securities market. Generally, the fixed-price mechanism is used in Malaysia IPOs. Prior to 1996, companies had to abide by the SC's guideline on pricing of IPOs that was based on price to earnings (P/E) multiples. For each major industry, the SC had a range of P/E multiples and a firm was required to use a P/E multiple in this range to price its shares. Despite the abolition of this guideline in 1996, issuers and underwriters continue to use P/E multiples to price an IPO (Taufil-Mohd, 2007). Some companies also supplement P/E ratios with other measures such as net tangible assets, though, the P/E multiple is still the most popular method in setting the offer price.

Under the fixed-price mechanism, when an issuer and an underwriter agree on the offer price, an application to request for approval is submitted to the Ministry of International Trade and Industry (MITI), the Foreign Investment Committee (FIC), and the SC. Upon obtaining the approval, the shares of the issuing company are offered to investors prior to listing. Thus, the investors are aware of the IPO offer price before making the application. To participate in the IPO offering, the investors must pay the full amount of their subscriptions without knowing if their applications would be successful. The demand from investors is only known once the issue is closed. In other words, the issuer and underwriter face unknown investor demand when setting the offer price. In case of oversubscription by investors, a balloting process is held.

According to Agarwal, Liu, and Rhee (2008), and Low and Yong (2011), some IPO pricing mechanisms such as auction and book-building do not provide the issuer

relevant information to gauge oversubscription of the IPOs. In developed countries such as the United States (U.S.) and the United Kingdom (U.K.), auction and book-building are the common mechanisms used (Agarwal *et al*., 2008; Low & Yong, 2011), which are systematic processes of gauging investor demand for shares—that is, the investors specify the number of shares they wish to subscribe and the amount they are willing to pay for. The highest share price is known as the cap price and the lowest share price is known as the floor price. The final IPO price is determined using investor bids (demand from investors) once the bidding has closed. In other words, oversubscription in auction and book-building is based on the bids from investors. The investors will submit the bids (share quantity and share price) that they are willing to pay for the IPO shares. After the auction or book is closed, the final offer will be formed based on the price range submitted by investors. The offer price in this mechanism does not truly represent underpricing because some of the investors, especially the uninformed, would generally bid a higher share price or cap price because they have less information about the actual firm value. In addition, the issuer also usually allows the underwriters to adjust the issue size of the IPOs under certain circumstance, depending on the demand from investors. In such cases, auction and book-building mechanisms would allow firms to extract information from investors before setting the final price and issue size.

On the contrary, in a fixed-price mechanism environment, the offer price and issue size is fixed by the issuer and underwriter without knowing the demand from investors, which would mean that oversubscription using this approach is purely based on the demand from investors. In addition, the fixed offer price truly represents underpricing because investors, especially informed investors, would only participate if the offer

price of IPO is underpriced. Since the Malaysian IPO market is mainly using a fixed-price mechanism, this may have a different effect on oversubscription rates, as compared to those markets that use book-building and auction approaches.

1.3 Problem Statement

Oversubscription ratio (pre-market demand) is an essential element in the success of IPOs and it varies according to the pricing mechanism adopted by the country (Mazouz, Saadouni, & Yin, 2009). In a developed market, the pricing mechanism is mostly done using book-building and auction mechanisms. In book-building mechanism, IPO offer price is established from investor demand, while in auction mechanism, IPO offer price is generated from bids among a group of investors. Therefore book-building and auction mechanisms allow firms to incorporate indication or interest from investors. In contrast, the mechanism used in the Malaysian market is generally to fix the offer price prior to the allocation by the issuer and underwriter, without knowing the demand from investors. According to Chowdhry and Sherman (1996a) countries that employ the fixed-price mechanism, such as Malaysia, have a higher oversubscription ratio, as compared to the US and the UK markets. The high oversubscription rate is noticeable, and hence, cannot be treated as an isolated case. Thus, it is important for the issuer and investors to understand the factors that influence investor demand during the subscription period.

As far as the literature is concerned, none of the studies examined factors that influence oversubscription in developed markets. Such studies are almost non-existent due to unavailability of data on oversubscription ratio (pre-market demand) prior to listing (Low & Yong, 2011). This is because certain IPO pricing mechanisms did not offer

issuers the related information to gauge IPO pre-market demand. In Malaysia, most studies focused on underpricing of IPOs (Abdul-Rahim & Yong, 2010; Jelic, Saadouni, & Briston, 2001; Paudyal, Saadouni, & Briston, 1998; Taufil-Mohd, 2007; Tian & Megginson, 2007; Vandemaele, 2003; Wan-Hussin, 2005; Yong & Isa, 2003). Studies on the oversubscription phenomenon in fixed-price IPOs is only beginning to emerge recently. Low and Yong (2011), who studied the oversubscription phenomena showed that investors' enthusiasm, opportunity cost, offer price, and supply of IPOs are factors that influence the oversubscription ratio significantly. Furthermore, this study was of the view that the oversubscription trend could also be explained by other factors which were not covered in their study. Thus, in an attempt to fill this gap, this study examined relevant factors in the Malaysian market, such as growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* equity regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism, that influence IPO oversubscription.

The first factor examined in this study was growth opportunity, which was expected to act as a signalling tool of the IPO's quality. According to Bhabra and Pettway (2003), investors would invest in a company that is competitive and has future growth potential. Studies on growth opportunity in developed markets focused on its effects on performance (Chung *et al*., 2005; Connolly & Hirschey, 2005; Lai & Lo, 2012; Leone, Rock, & Willenborg, 2007; Xiao, 2011).

In Malaysia, the study on growth opportunity has only been undertaken by Abdul-Rahim and Che-Embi (2013), who measured growth by calculating the percentage of IPO proceeds allocated for growth activities (working capital, capital expenditure, and

R&D expenditure) on IPO initial returns. In contrast, this study examined the role of growth opportunity in influencing oversubscription by excluding working capital, as its function is to support day-to-day activities and not for expansion purposes (Eljelly, 2004). Although studies on growth opportunity had been conducted, the fact that the importance of growth opportunity explain IPO oversubscription is still untested, which is important to predict potential demand from investors. As documented by Chung *et al*. (2005), investors tend to favour firms that have growth opportunity as they could generate high returns. Thus, potential investors would benefit by subscribing to IPOs with good prospects, which in turn affects oversubscription. This study argued that if growth potential of IPOs signals the quality of IPOs, then it would attract investors to subscribe to IPOs. In other words, if growth opportunity indicates firms' future prospects, then it would accordingly affect investor demand. Therefore, this study expected that growth opportunity would have a more direct effect and could be a direct tool in influencing investors and oversubscription of IPOs. However, empirical evidence with respect to this is still lacking in Malaysia.

The second factor is *Bumiputera* equity ownership, which is said to influence underpricing and oversubscription. According to Ariff and Shamsher (1999), government intervention would positively affect performance of IPOs. This line of argument is supported by Prasad *et al*. (2006) who pointed out that the Malaysian government policy in 1976 (30 percent *Bumiputera* equity requirement) has an impact on IPO underpricing. However, the findings were not followed up by further investigation on the relationship between *Bumiputera* equity ownership and oversubscription ratio. Similarly, Abdullah and Taufil-Mohd (2004) noted that *Bumiputera* ownership is one of the variables that affect underpricing of IPOs in

Malaysia. However, their findings showed that the *Bumiputera* ownership allocation reduced the underpricing level in Malaysian IPOs. In contrast, Taufil-Mohd (2007) showed that *Bumiputera* equity ownership does not influence underpricing of IPOs. The contradictory evidence calls for further investigation to determine whether *Bumiputera* equity ownership has any influence on oversubscription levels of IPOs. This study was of the view that *Bumiputera* equity ownership must be given adequate focus, since this variable is unique to the Malaysian market. It is one of the NEP tools to increase *Bumiputera* participation in the equity market since 1976.

Thirdly, previous studies did not take into consideration the revised guidelines on *Bumiputera* equity requirement and this is another factor for conducting this research. As stated earlier, the 30 percent *Bumiputera* equity ownership for firms seeking listing has been removed. From 30 June 2009, all firms seeking listing are required to have only 12.5 percent *Bumiputera* equity requirement, which showed that the distribution of wealth to *Bumiputera* is reduced. This narrows the opportunity for *Bumiputera* investors to own IPOs shares. It is likely that the new requirement could have an adverse impact on investor demand, especially *Bumiputera* investors, and could jeopardise the objective of the NEP, which was the aim to achieve 30 percent *Bumiputera* share in the equity market. Therefore, the impact of the revised of *Bumiputera* regulation on oversubscription needs to be empirically examined. Hence, this study contributed to the literature on oversubscription by examining the impact of the changes (before and after) to the *Bumiputera* equity requirement in June 2009 on IPO oversubscription, which has not been tested yet.

The fourth factor is the *Shariah*-compliant status, which is another unique feature of the Malaysian market. Generally, the SC, through the SAC and Bursa Malaysia, undertakes the screening process of *Shariah*-compliance to determine whether companies comply with *Shariah* guidelines. A few studies have been conducted on the impact of *Shariah*-compliance on IPO underpricing (Abdul-Rahim & Che-Embi, 2013; Abdul-Rahim & Yong, 2010; Abu-Bakar & Uzaki, 2013; Mayes & Alqahtani, 2015). Abdul-Rahim and Che-Embi (2013), Abdul-Rahim and Yong (2010) and Abu-Bakar and Uzaki (2013) found that underpricing between *Shariah* and non-*Shariah* IPOs is not statistically different. However, all three studies found that for the sample of *Shariah*-compliant IPOs, oversubscription ratios positively affect the underpricing level. Although Abdul-Rahim and Che-Embi (2013), Abdul-Rahim and Yong (2010) and Abu-Bakar and Uzaki (2013) discovered the relationship of oversubscription on underpricing of Malaysian *Shariah*-compliant IPOs, they did not empirically investigate factors that influence oversubscription of Malaysian IPOs. This present study differs from Abdul-Rahim and Che-Embi (2013), Abdul-Rahim and Yong (2010) and Abu-Bakar and Uzaki (2013) as it looked at factors that influence the oversubscription ratio of Malaysian IPOs. Furthermore, this study combined both *Shariah* and non-*Shariah* compliant IPOs in the analysis which significantly contribute to the robustness of the finding. In contrast to the findings of Abdul-Rahim and Che-Embi (2013), Abdul-Rahim and Yong (2010) and Abu-Bakar and Uzaki (2013), Mayes and Alqahtani (2015) found that *Sharia*h-compliant status reduces the underpricing of IPOs in Saudi Arabia. This contradictory evidence calls for further investigation to determine whether *Shariah*-compliant status affects oversubscriptions of IPOs.

Next, the fifth factor for conducting this research is that previous studies also did not take into consideration the revised criteria on *Shariah*-compliant status. As mentioned earlier, the SAC had revised the screening criteria, which comprised business activity benchmarks as well as introduced financial ratio benchmarks (cash and debt) for determining *Shariah*-compliant status, on 29 November 2013. Furthermore, companies that comply with *Shariah* guidelines are thoroughly scrutinised and monitored during the listing process by regulators. By having this new requirement, Malaysia would be at par with the screening processes around the world, as the Malaysian securities market would be aligned with international standards (Malaysia International Islamic Financial Centre, 2013). This feature would make Malaysian IPOs more attractive to foreign investors, particularly the Middle Eastern investors, who are looking for *Shariah*-compliant securities since these shares are free from non-permissible elements, thereby contributing toward Malaysia's aspirations of becoming a global Islamic hub for Islamic finance products. Since this factor has not been given much attention by previous studies, the impact of revised *Shariah*-compliant status on oversubscription is useful to fill the gap in the literature.

Finally this study investigates the roles of cash and debt on oversubscriptions. Cash and debt are tools of managing capital structure in firms. Firms may use cash or debt to fund their investments or to manage their operations. Previous studies on cash and debt were mostly focused on listed firms rather than firms that were going for listing (IPOs). Usually, capital structure is used to determine the mixture of financing sources, either to minimise the cost of capital or maximise firm value. Therefore, information on the use of cash and debt must be incorporated to understand the firm's financing decision that influences investor demand. Furthermore, past studies hardly reconciled

the cash and debt framework, and largely ignored the issues, which are yet to be resolved on whether they affect investors' decision to purchase IPOs during listing. In addition, by examining agency theory in the Malaysian IPO market, it would increase the overall understanding of this phenomenon, particularly regarding the relationship between cash and debt on oversubscription.

In summary, it is important to study *Bumiputera* equity requirement and *Shariah*-compliant status, and how changes in these policies affect oversubscription of IPOs. To the best of the researcher's knowledge, no study thus far has looked specifically into these aspects. By including growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism, this study attempted to contribute a better understanding of oversubscription of IPOs in the Malaysian market. The selection of these variables will be thoroughly reviewed in Chapter Two.

1.4 Research Question

In general, this study looks into the factors that affect oversubscription of IPOs in Malaysia. Specifically, the research questions developed in this study are:

1. Do growth opportunity, *Bumiputera* equity ownership and *Shariah*-compliant status influence oversubscription of IPOs?
2. Do the revised in *Bumiputera* equity regulation and *Shariah*-compliance status guidelines influence oversubscription of IPOs?
3. Do cash and debt affect oversubscription of IPOs?
4. Does pricing mechanism, including interaction effect influence the oversubscription of IPOs?

1.5 Research Objectives

The main objective of this study is to examine the role of the eight elements of pre-listing of IPOs, that is, growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliance status, revised *Shariah* regulation, cash, debt and pricing mechanism in influencing oversubscription of IPOs in the Malaysian IPO market. Particularly, this study endeavors to attain the following objectives:

1. To examine the impact of growth opportunity, *Bumiputera* equity ownership and *Shariah*-compliant status on oversubscription of IPOs.
2. To investigate the effects of the revised in *Bumiputera* equity regulation and *Shariah*-compliance status guidelines on oversubscription of IPOs.
3. To examine the impact of cash and debt ratio on oversubscription of IPOs.
4. To examine the impact of pricing mechanism, including interaction effect on the oversubscription of IPOs.

1.6 Significance of the Study

This study contributed to a greater understanding of oversubscription, specifically in the context of the Malaysian IPO market. The oversubscription ratio could reveal the investors' optimism about IPO prospects based on pre-listing information. Knowing the factors that influence oversubscription is crucial in understanding performance of IPOs. Therefore, it was suggested that pre-IPO information, such as growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism are perceived to be significant factors in influencing investor demand and thus support the need for this study to be carried out. Thus, the findings from this study would be of

interest to practitioners such as investors, issuers, underwriters, regulators, and policy makers in managing the Malaysian IPO market.

By examining oversubscription of IPOs, this study revealed how investors respond to publicly available information (prospectus) during the subscription period. Investors need to be aware and take into consideration pre-listing information before making decisions to subscribe to new IPO issues. This would minimise uncertainty and risk to ensure that subscribing to these new IPO issues would yield higher profits. In addition, the findings of this study would benefit investors in Malaysian IPOs as they cannot simply adopt strategies from other markets (developed markets) due to distinct features, such as *Bumiputera* equity requirement, *Shariah*-compliant status and fixed-price mechanism. Overall, the results of this study would provide new insights to investors about the vital information available in the prospectus when making decisions to subscribe to IPOs. Despite the lower initial returns of IPOs in the recent years, they continue to provide higher average annual returns, as compared to ASB and TH (as shown in Table 1.1), and present a great investment opportunity to investors.

The growth of the Malaysian IPO market is reflected in the increasing number of listed companies on the Bursa Malaysia, that is, from 795 companies in 2000 to 904 companies at the end of 2016. Thus, it is important for potential issuers to understand key information that should be incorporated into the prospectus to attract investors. This would minimise uncertainty and risk as the most challenging part for the issuers is to ensure that their issues are fully subscribed. The issuers are also concerned about the demand from investors for their IPOs, since it plays a key role in affecting the

aftermarket performance. Good response from investors would reflect higher initial returns during the initial days of listing. The findings from this study can offer practical understanding to the issuers on the factors that should be considered to assure good early performance of their IPOs. Therefore, it would be of benefit to the issuer in managing and planning the IPO process carefully.

According to Eldomiaty (2008) and Haron (2014), information asymmetry is higher in developing markets like Malaysia. In the case of Malaysian fixed-price IPOs, the disclosure of intended use of proceeds in the prospectus might signal growth prospects of IPOs and assist investors to analyse the value of the stock after listing. This is important because investors pay the full amount of their subscriptions (up-front payment) without knowing if their IPO applications would be successful. Therefore, in the fixed-price mechanism IPO market, investors should extract relevant information prior to the IPO listing in order to be able to value the new issues prior to subscriptions (Agarwal *et al*., 2008; Low & Yong, 2011). Thus, the finding of this study could recommend pertinent info that should be disclosed to help investors in deciding whether to subscribe to the IPOs. This is to reduce the information asymmetry problem that exists in the Malaysian IPO market. Such action might attract foreign investors to invest in our stock market and position Malaysia as a hub for investment in Asia, in line with the objective of the Financial Sector Blueprint 2011-2020.

As mentioned before, institutional aspects of Malaysian IPOs vary from other markets, especially *Bumiputera* equity requirement and *Shariah*-compliant status. Revised criteria of the allocation to *Bumiputera* investors could have an adverse impact on investor demand and it might jeopardise the objectives of the NEP. The reduced

Bumiputera equity requirement as an instrument of growth would affect redistribution of wealth and stabilisation, and eventually the well-being of this indigenous group. With respect to *Shariah*-compliant status, Bank Negara Malaysia is focusing on positioning Malaysia as the Asia's central hub for Islamic finance, as stated in the Financial Blueprint 2011-2020. Therefore, the findings from this study would have important implications for regulators and policy makers in terms of whether to continue with the existing policies or to revise them in order to attain the national objectives. This would ensure the effectiveness of these policies in cultivating investor confidence in the Malaysian stock market. Thus, this would help regulator to fathom how these factors could be used as a mechanism to improve market liquidity and protect the interests of minority shareholders, particularly in the immediate aftermarket without creating an adverse impact on IPO performance.

1.7 Scope of the Study

This study examined oversubscription of IPOs over a 16-year period, from January 2000 to December 2015. The sample period began from January 2000 because the *Shariah*-compliant status only took effect in June 1997. The two and half year gap between the *Shariah* guidelines taking effect and the beginning of the study period is to allow time for investors to adopt the new rules. In addition, the sample also avoids the Asian financial crisis which occurred in 1997/1998 to minimise the effects and allow sufficient time for the Malaysian market to recover and stabilise. The IPOs observed were listed on the Main Board and Second Board, currently known as the Main Market, and the MESDAQ (which was rebranded as the ACE Market).

In explaining oversubscription of IPOs, this study focused on specific pre-listing information (namely growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism), as well as controls for six variables that have been known to affect oversubscription in past studies, which were the market condition, retail investor involvement, investor sentiment, offer size, listing board, and financial crisis.

1.8 Structure of the Thesis

This thesis is structured into five chapters. Chapter One provides the introduction on background, problem statement, research objectives and significance of the study. Chapter Two of the thesis reviews the underlying theories and literature in the area of study and highlights the literature on IPO oversubscription, growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism as well as the six control variables. The data source, sample description and the measurement of main determinant variables and control variables are explained in Chapter Three. This chapter also presents the research framework and discusses the hypotheses development based on the underlying theories and empirical evidence in Chapter Two. Chapter Four presents the results of descriptive statistics, comparison of the mean values between the high and low demand IPOs, regression analysis and robustness analyses. Finally, Chapter Five summarises the findings, implications, limitations, and recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses the underlying theories and empirical research regarding the topic of the study, which is used to support the hypotheses development. A summary of the empirical research on oversubscription is given by providing evidences of oversubscriptions in the developed market, developing market and the Malaysian market. The classifications of developed and developing markets are as specified by the World Bank[IV]. This is followed by a discussion on growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt, pricing mechanism and other explanatory variables applied in earlier studies.

2.2 Underlying Theories

A number of theories have been put forward by previous researchers to discuss the IPO underpricing, such as bandwagon effect, information asymmetry, lawsuit avoidance, prospects theory, signaling and winner's curse. Nevertheless, those theories are not applicable to oversubscriptions. Thus, this study only uses the most relevant underlying theories which are discussed in this sub-section to examine the relationships between main independent variables and oversubscription behaviours. The theories are signaling theory, winner's curse theory and agency theory, and they are prominent and draw the most attention of the researchers. Furthermore, the selection of these theories provides insight into an important issue in oversubscription

[IV] Developed and developing countries data are available on the website (http://data.worldbank.org)

ratio, which is within the objectives, limit and scope for examining the impact of eight main independent variables and six control variables on dependent variable.

2.2.1 Signaling Theory and Oversubscription

Signalling theory, as proposed by Akerlof (1970), indicates that buyers use market statistics to judge the quality of product before purchase. In this case, the seller takes the opportunity to sell low quality products at higher prices. Thus, buyers get trapped into the information asymmetry problem, as only sellers are better informed about their product quality. Meanwhile, Leland and Pyle (1977) have developed signalling models based on IPO valuation that has a high fractional ownership of a company by entrepreneurs, and that implies that there are certain features of the company's prospect that face a higher risk, which will provide a credible signal to future investors. In further development, signalling models formalised by Allen and Faulhaber (1989), Grinblatt and Hwang (1989), and Welch (1989) all show that underpricing is used as a signal, and firms of high quality that have greater underpricing would receive good responses from investors for their respective IPOs. Therefore, investors' demand is an important component that determines the success of IPOs.

Investors normally pay attention to information that is available prior to making a decision. Rational investors use this information to subscribe to quality IPOs. When listing IPOs, issuers have the opportunity to signal the true quality of IPOs through disclosures in the prospectus. The disclosures might influence the demand for these shares, as the informed investors would tend to subscribe to good quality issues. This conjecture is consistent with Álvarez and González (2005) who argued that firms use the strategy to signal their quality by using the offer price and proportion of the shares

offered at the IPO. Low quality firms would not be able to recoup the initial losses due to underpricing since their actual quality would become known after the listing. They would not be able to secure a better price during the seasoned offering, compared to high quality IPOs which are able to get higher prices as well as show superior long-term performance. Similarly, Vong (2006) argues that when investors subscribe to IPOs, this shows that they believe in the firm's future prospects. Their belief becomes stronger when the demand from investors is high and results in large initial returns. In short, both uninformed as well-informed investors would demand good quality IPOs, whereas low quality IPOs would only attract the uninformed investors.

Overall, previous studies suggest that investors' demand, which is reflected in the oversubscription levels, signals the quality of the firms (Álvarez & González, 2005; Connelly, Certo, Ireland, & Reutzel, 2011; Cornelli & Goldreich, 2003; Lin, Lee, & Liu, 2007; Vong, 2006). Projecting a good signal is not an easy task for low quality IPOs as it is costly and difficult, because misleading signals might lead to adverse outcomes that could jeopardise the success of the IPO during listing, as well as in future seasoned offerings (SEOs) (Gounopoulos, 2010). Based on the above discussion, the signalling quality may influence oversubscription which is an important factor that contributes to the success of IPOs.

2.2.2 The Winner's Curse and Oversubscription

The winner's curse theory was proposed by Rock (1986). It is basically founded on the asymmetric information hypothesis. This theory explains the adverse selection problem faced by uninformed investors who are less aware of the true value of the issuing firms. In contrast, informed investors have more information about the real

value of issuing firms. The informed investors would only subscribe to good quality IPOs that have future potential and are worthy of their price. Moreover, informed investors are unlikely to subscribe to an IPO if they feel there is higher probability that the IPO is overpriced. In the absence of informed investors in the bidding process, the uninformed investors would place their order to subscribe and are more likely to secure their subscription. Thus, investments in these IPOs become a "curse" to the uninformed investors when they realise that the IPOs are overpriced. As such, they avoid entering the IPO market. In order to attract uninformed investors to enter the market, issuers and underwriters normally have to offer discounts and this leads to underpricing of new issues. Other relevant studies on the winner's curse include those by Baron (1982), Beatty and Ritter (1986), Balvers, McDonald, and Miller (1988), and Levis (1990).

According to Chowdhry and Sherman (1996a), in UK-style IPOs, there are two reasons why underwriters underprice, namely, to reduce the adverse selection problem and to reduce the probability that the issue would fail due to leakage of adverse information. On the one hand, underpricing attracts investors to subscribe and this subsequently increases the subscription rate. On the other hand, Amihud, Hauser, and Kirsh (2003) showed evidence of adverse selection in Israel IPOs, as they noted that underpricing in the Tel Aviv Stock Exchange (TASE) is negatively related to IPO allocation. Uninformed investors would earn negative excess initial returns because the IPOs are slightly overpriced, though the average initial returns have been reported at 12 percent. Therefore, to draw uninformed investors back into the market, underwriters would have to underprice their IPOs to avoid failure and subsequently this would increase the oversubscription rate. This is consistent with the explanation by Rock (1986) on

adverse selection issues faced by uninformed investors, as he believes that uninformed investors receive a higher portion of IPO allocation without noticing that the IPOs are overpriced and obtain smaller quantities of underpriced IPOs, since those with good prospects have already been taken up by the informed investors, particularly institutional investors. Thus, the participation of informed investors and uninformed investors would increase the oversubscription rate of the IPOs. The above discussion shows that potential investors would face adverse selection issue or winner's curse with regard to their subscription of IPOs.

2.2.3 Agency Theory and Oversubscription

Agency theory has been initially developed by Jensen and Meckling (1976). The business conflicts between managers and shareholders are usually referred to as agency costs in the literature. The agency theory is concerned with resolving agency problems that arise due to inefficient and incomplete information, and it is a common issue of debate within firms. The agency issue is also one of the main concerns in the IPO process, since the present owners will sell some of the firm's equity to new shareholders. This leads to an increase in agency conflict between the majority and minority shareholders.

In the IPO process, it typically creates a circumstance of agency problem between the issuer and underwriter (Arthurs, Hoskisson, Busenitz, & Johnson, 2008). The underwriter who is an adviser to issuers usually gets incentive to encourage underpricing to its institutional investors. Therefore, it is believed that with greater underpricing, it would lead to oversubscription. Thus, it would create loyalty by the institutional investors to encourage future investment deals (Pollock, Porac, & Wade, 2004). An allotment of larger discount to institutional investors would reduce the

proceeds or amount raised. However, Loughran and Ritter (2002) state that issuers would not be upset about the underpricing as they will gain on the retained shares from increasing share prices.

Meanwhile, Jensen (1986) argues that managers who manage company cash cannot be expected to monitor them with the same prudence as when they monitor their own cash. In addition, managers faced with incentives and opportunities might not hesitate to use company assets for personal benefits, rather than for maximising shareholders' wealth. Meanwhile, Jensen and Meckling (1976) argues that the manager's interest might not be aligned with that of the shareholders' interest, and this could lead to wastage of free cash flow on incentives and bad investments. The managers' self-interest could motivate them to misuse the free cash flow. They might invest in projects that do not maximise shareholders' value. This is in line with Jensen (1986) who states that managers tend to invest in negative net present value (NPV) projects when there is free cash flow and would make shareholders bear the loss when the equity value is decreased. Therefore, investors would be reluctant to invest in such companies. A company's free cash flow is determined by the earnings from its asset base. Jensen (1986) reports that managers in companies with sizeable free cash flow might be reluctant to pay out cash to shareholders as they might reinvest all earnings into the company for further growth.

To reduce this agency problem, Jensen (1986) suggests that debt mitigates agency conflicts and accordingly protects shareholder's interest in maximising wealth. This is further supported by Fama and French (2002) who argues that debt could curb the agency problem by forcing managers to pay out more of the firm's excess cash for servicing the debt instead of misusing it for their self-interest. In other words, proper

management of firms' debt would create confidence that investors are somehow protected by the debtholder in monitoring the misuse of the firms' cash flow. The above discussion shows that agency conflict may influence investors to subscribe the IPOs.

2.3 Empirical Evidence on Oversubscription in Various Markets

This section review past studies on oversubscription phenomenon in IPOs in the developed and developing countries and Malaysian markets. This is followed by a discussion on factors that explain oversubscription.

2.3.1 Oversubscription of IPOs in Developed Markets

Past studies on oversubscription concentrated mainly on developed markets. The summary of past studies on IPOs oversubscription in developed markets could be viewed in Table 2.1.

Table 2.1
Evidence on oversubscription of IPOs in the developed markets

Studies	Method	Market and Sample Period	Sample Size	OSR	Dependent Variables
Álvarez and González (2005)	Book-Building	Spain (1987-1997)	54	18.35	Initial return
Brennan and Franks (1997)	Book-Building	United Kingdom (1986-1989)	68	18.77	Initial return
Cornelli and Goldreich (2003)	Book-Building	Europe (1995-1999)	37	9.1	Issue price
Degeorge *et al*. (2010)	Auction	United States (1999-2007)	19	2.26	Flipping
Giudici and Paleari (2001)	Auction	Italy (1985-1999)	150	7.69	Initial return
Gounopoulos (2010)	Book-Building	Greece (1993-2009)	305	91.55	Earning Management
Kandel *et al*. (1999)	Auction	Israel (1993-1994)	28	5.1	Elasticity of demand
Maeseneire and Manigart (2002)	Book-Building	Easdaq & EuroNM (1996-1999)	300	15.3	Initial return
Vandemaele (2003)	Auction	France (1984-1995)	220	96.57	Initial return

In the US, there has been very little focus on factors that influence oversubscription as the pricing mechanism in the US is different and the information on pre-market oversubscription is almost non-existent in the book building and auction pricing mechanisms. As mentioned earlier, the final IPO price is determined using investor bids (demand from investors) once the bidding has closed. Degeorge, Derrien, and Womack (2010) have reported the role of oversubscription on flipping and find that the average oversubscription level is 2.26 times the auctioned IPOs listed on the Nasdaq Stock Market during the period 1999 to 2007. Oversubscription is measured by the number of issues demanded at all prices over the number of issues sold, without the overallotment option. Overall, Degeorge *et al*. (2010) documents that the auction mechanism permits the issuer and the underwriter to extract information about pricing (bids) from investors. In the auctioned IPOs, the demand originating mainly from institutions is quite elastic, indicating that informed investors or institutional investors have better information. Hence, by obtaining a larger share in the bidding or offering process, they would normally be rewarded with higher initial returns.

In European book building for IPOs, Cornelli and Goldreich (2003) have discovered that the average oversubscription ratio is 9.10 times. Based on 37 observations of IPOs during the period from 1995 to 1999, it is observed that demand from investors depends on issue price. It is noted that oversubscription and demand elasticity from bidders are positively correlated, while aftermarket volatility and demand elasticity are negatively correlated. In addition, the level of oversubscription to a small extent, affects the offer price. This is because the price of the IPO determines the demand. When the underwriter sets the issue price, he is also taking into consideration the oversubscription rate. It is after the underwriter allocates the shares to investors that

the aftermarket trading would begin. A positive relationship between the levels of oversubscription and the aftermarket returns in IPOs is observed.

Meanwhile, Kandel, Sarig, and Wohl (1999) have examined the demand curves of auctioned IPOs in Israel and found that the average oversubscription ratio was 5.10 times for the period from 1993 to 1994, based on 27 observations. In contrast to Kandel *et al*. (1999), Álvarez and González (2005) has documented an oversubscription ratio of 18.35 times in 54 observations of Spanish IPOs for the period from 1987 to 1997. This is higher than the average oversubscription ratio of 8.25 times for 150 observations of IPOs on the Italian Stock Exchange, issued between 1985 and 1999.

In Easdaq[V] and EuroNM[VI], Maeseneire and Manigart (2002) have discovered that the average oversubscription rate is 15.30 times during the period from 1996 to 1999. They have shown that the initial returns for a particular offering would be higher when the demand is high. The oversubscription normally determines the initial returns for a particular IPO. When investors are optimistic about a particular IPO, the IPO price would normally increase, as compared to a situation where investors are pessimistic. This infers that investors' sentiment plays a vital role in influencing the IPO oversubscription rate and accordingly, the initial returns of the IPOs.

Similar to Maeseneire and Manigart (2002), Brennan and Franks (1997) have revealed the average oversubscription ratio in the United Kingdom to be 18.77 times for the period from 1986 to 1989, based on 68 observations. According to Brennan and Franks (1997), underpricing is used to ensure oversubscription and rationing in the

[V] European Association of Securities Dealers Automated Quotation
[VI] A network of European exchanges dedicated to promoting growth companies

share allocation process. The regression results indicate that for every 1 percent change in underpricing, there is a 0.64 percent increase in oversubscription.

Meanwhile, the study by Gounopoulos (2010) has reported that the average oversubscription rate is 91.5 times in the Athens Stock Exchange for Greece IPOs, using 305 observations for the period from 1993 to 2009. The oversubscription ratio (demand multiple) is positive with the forecast accuracy. Investors are able to notice when the company is being too conservative in its earnings forecasts and this would boost the demand for the IPO as investors bear less risks regarding earning forecast error. In other words, if the issuer chooses to give more precise numbers, they would lower the cost of information for uninformed investors, thereby increasing the demand for their IPOs. Providing most of the information related to the IPOs accurately to the uninformed investors will reduce the cost of information to the uninformed investors and at the same time increases the demand for the particular IPO.

Similarly, Vandemaele (2003) has documented the average oversubscription ratio to be 96.57 times for IPOs in France. He has employed two simultaneous pricing mechanisms, namely auction and fixed price, to examine the choice of floatation mechanism, based on 220 companies listed in the French market during the period from 1984 to 1995. Their findings have demonstrated that there is a significant relationship between the choice of auction mechanism and valuation uncertainty of the IPO, number of secondary shares sold, as well as underwriter reputation. Their conclusion is that fixed-price mechanisms are preferred when the market is bearish, while auction procedures are used when the markets are optimistic, that is, when investor demand is likely to be highest.

2.3.2 Oversubscription of IPOs in Developing Markets

The phenomena of oversubscription of IPOs do not only exist in developed markets but could also be observed in the developing markets. The summary of past studies on IPOs oversubscription in developing markets could be viewed in Table 2.2.

Table 2.2
Evidence on oversubscription of IPOs in the developing markets

Studies	Method	Market and Sample Period	Sample Size	OSR times	Dependent Variables
Alanazi (2013)	Book-Building	Kuwait (2003-2010)	9	596	Initial return
Alanazi (2013)	Book-Building	Qatar (2003-2010)	12	775	Initial return
Alanazi (2013)	Book-Building	Saudi Arabia (2003-2010)	76	608	Initial return
Agarwal *et al*. (2008)	Fixed-Price	Hong Kong (1993-1997)	256	91.36	Initial Return
Chahine and Tohmé (2009)	Book-Building	Middle East (2000-2007)	127	37.69	Initial return
Cheng *et al*. (2005)	Fixed-Price	Hong Kong (1993-1997)	267	93.83	Initial return
Gao (2010)	Book-Building	China (2006-2008)	217	1009	Initial return
Lee *et al*. (1999).	Fixed Price	Singapore (1973-1992)	132	41.28	Initial return
Lin *et al*. (2007)	Auction	Taiwan (1995-2002)	89	366.77	Initial return
Mazouz *et al*. (2009)	Fixed-Price	Hong Kong (1994-1997)	224	76.12	Initial return
Omran (2005)	Book-Building	Egypt (1994-1998)	53	N.A.	Initial return
Sahoo and Rajib (2010)	Book-Building	India (2002-2006)	92	23.88	Buy-and-hold Abnormal Returns
Tian and Megginson (2007)	Auction	China (1992-2001)	1088	187.4	Initial return
Zouari *et al*. (2009)	Book-Building	Tunisia (1992-2008)	345	4.52	Retained capital

In Singapore, Lee, Taylor, and Walter (1999) has reported that the average oversubscription ratio is 41.28 times for the period from 1973 to 1992. They have observed that applications for subscription of IPOs are mainly from informed investors. It is evident that firms with higher level of underpricing have a higher oversubscription rate. However, firms with higher level of oversubscription show poor performance in the long run. Similarly, Sahoo and Rajib (2010) analysed the

oversubscription ratio, using 92 observations of IPOs listed in the National Stock Exchange (NSE), Mumbai, India. The average oversubscription ratio is 23.88 times for the period from 2002 to 2006. The study, however, reports that there is no evidence that the rate of oversubscription is significant in influencing the long run underperformance.

As for Hong Kong, which is Asia's second largest stock exchange in terms of market capitalisation, the average oversubscription ratio is 91.36 times for 256 IPOs for the period from 1993 to 1997 (Agarwal *et al.*, 2008). In their study, the oversubscription variable has been included to examine whether there is a positive relationship between IPO's initial returns and investor demand. The authors have detected a positive relationship in the short run but a negative association in the long run. The positive significant association is assumed to be based on the overreaction and over-optimism the investors in the short run. Similarly, Cheng, Chan, and Mak (2005) also have reported that the average oversubscription ratio is 93.83 times for 267 observations of IPOs in Hong Kong for the same period. They argue that some applicants purchase IPO shares in the aftermarket when the oversubscription rate is higher and consequently reap higher IPO returns.

Meanwhile, a study by Chahine and Tohmé (2009) has discovered that in the Middle East, specifically for the Arab IPOs, the average oversubscription ratio is 37.69 times for the period between 2000 and 2007. It is noted that the oversubscription rate is also significantly related to underpricing. With regard to the Middle Eastern market, Alanazi (2013) has revealed that the average oversubscription is 596 times in the Kuwaiti market, 775 times in the Qatari market, and 608 times in the Saudi Arabian

market for the period from 2003 to 2010. These are among the highest oversubscription rates recorded in Asia for the said period. This suggests that firms with greater investor demand have higher underpricing.

In the Egyptian market, Omran (2005) has studied the oversubscription ratio for the period from 1994 to 1998. The result shows a significant positive relationship between oversubscription and underpricing. This also suggests that oversubscription supports the investors' sentiments due to the fact that investors are optimistic about the earning potential of an IPO which projects significant abnormal returns over longer horizons, such as three-year to five-year periods. The findings show that oversubscription by investors is influenced by the initial excess returns. Unlike in Egypt, Zouari, Boudriga, and Taktak (2009) have reported that the average oversubscription ratio is only 4.52 times in Tunisia IPOs for the period between 1992 and 1998. Since institutional investors are informed, they participate only in underpriced IPOs. This suggests that irrational investors rely on information leakage by institutional investors to demand for the firm's shares and this puts pressure on the price to increase on the day of listing. This is further supported by Lin *et al.* (2007) who have stated that institutional investors tend to bid higher in Taiwanese auctioned IPOs. By using 89 observations, they find the average oversubscription ratio to be 366.77 times for the period from 1995 to 2002. According to Lin *et al*. (2007), IPO shares are more underpriced in auctions where institutional investors participate. It implies that institutional investors are better informed about the IPO's value and that they obtain higher information when they bid relatively higher than retail investors.

2.3.3 Oversubscription of IPOs in the Malaysia Markets

The literature on factors that determine oversubscription of IPOs in the Malaysian market show that these issues have only been recently addressed (Low & Yong, 2011). The evidences are not comprehensive enough to suggest or to support any single factor or theory that could explain the oversubscription anomaly. The oversubscription ratio phenomenon in Malaysia is documented in Table 2.3. Based on studies of oversubscription in Malaysia from the early 1980s until 2011, the average oversubscription ratio is observed to range from 23 times to 50 times. In recent years a declining trend is evident.

Table 2.3
Evidence on Oversubscription of IPOs in Malaysia

Studies	Sample Period	Sample Size	OSR	Dependent Variables
Abdul-Rahim and Yong (2010)	(1999-2007)	386	32.44	Initial return
How *et al*. (2007)	(1989-2000)	322	49.95	Initial return
Jelic *et al*. (2001)	(1980-1995)	182	27.67	Initial return
Low and Yong (2011)	(2000-2007)	368	33.59	Oversubscription ratio
Paudyal *et al*. (1998)	(1984-1995)	95	23.00	Initial return
Taufil-Mohd (2007)	(1990-2002)	546	41.14	Initial return
Wan-Hussin (2005)	(1996-2000)	154	36.74	Initial return
Yong (2013)	(2004-2011)	283	34.25	Price stabilization
Yong and Isa (2003)	(1990-1998)	468	43.71	Initial return

Paudyal *et al*. (1998) found the oversubscription ratio to be 23 times for the period from 1984 to 1995. They have investigated the determinants of IPO underpricing in the Main Board of Bursa Malaysia and highlights that the good issues, which are normally subscribed by informed investors, tend to be oversubscribed. The initial returns are higher compared to the bad issues which are normally subscribed by uninformed investors. Therefore, their finding supports the winner's curse model of Rock (1986), that is, there is a positive relationship between investor demand and initial returns for the good issues.

In investigating the underpricing phenomena in Malaysia, Jelic *et al*. (2001) extends the sample period used by Paudyal *et al*. (1998). Their observation is that the oversubscription ratio slightly increases to 27.67 times. Jelic *et al*. (2001) examine management earnings forecast and the role of underwriter reputation on IPO underpricing, and show that the accuracy of earnings forecast and underwriter reputation does not influence underpricing of IPOs. Nevertheless, market sentiment prior to IPO listing and oversubscription rate are found to be positively and significantly related to the level of underpricing.

According to Yong and Isa (2003), the oversubscription ratio is 43.71 times for their period of study, that is, between 1990 and 1998. Their finding shows that oversubscription is significant in explaining initial returns. Using a sample for the period 1989 to 2000, How *et al*. (2007) have shown that the oversubscription ratio slightly increases to 49.95 times. Their findings are consistent with other studies, that is, initial returns are positively and significantly related to investor demand. They argue that IPO shares offered at a lower offer price are more likely to be subscribed by investors, as its initial returns are higher.

Meanwhile, Wan-Hussin (2005) has observed the sample period from 1996 to 2000 and the oversubscription ratio is revealed to be 36.74 times. Consistent with the earlier studies by Yong and Isa (2003) and Paudyal *et al*. (1998), he demonstrates that oversubscription is positively and significantly related to initial returns. In contrast to Wan-Hussin (2005), Taufil-Mohd (2007) has documented an average oversubscription ratio of 41.14 times for the period from 1990 to 2002. Using 546 observations of Malaysian IPOs, he examines the relationship between regulations and underpricing

of IPOs, and found that protective mechanisms associated with high risk firms lead to more underpricing for firms that go public, and accordingly increase the subscription rate and initial returns.

However, Abdul-Rahim and Yong (2010) have stated that the average oversubscription ratio is 32.44 times for the period from 1999 to 2007. This result shows that demand, measured by oversubscription rate, plays a vital role in explaining the initial returns in Malaysian IPOs. This finding supports that of previous studies (How *et al*., 2007; Paudyal *et al*., 1998; Wan-Hussin, 2005; Yong & Isa, 2003). The recent study by Low and Yong (2011) reports an average oversubscription ratio of 33.59 times for the period 2000 to 2007, consistent with the recent finding by Yong (2013) of 34.25 times. Low and Yong (2011) argues that information, which affects the oversubscription anomaly, has become prevalent especially in fixed-price mechanism firms. Low and Yong (2011) point out that initial returns, IPO volume, opportunity cost of funds, and offer price are significant in explaining oversubscription ratio.

Overall, empirical studies show that auction and book-building are the common mechanisms used in developed and developing countries, except for Hong Kong, Malaysia, and Singapore (Agarwal *et al*., 2008; Chowdhry & Sherman, 1996a; Low & Yong, 2011). According to Agarwal *et al*. (2008), Chowdhry and Sherman (1996a), and Low and Yong (2011), auction and book-building mechanisms allow firms to extract information from investors before setting the offer price and issue size. Thus, offer price in this mechanism does not truly represent oversubscription because auction and book-building mechanisms are based on the order size and price range submitted

by all investors or bidders. In Malaysia, IPOs are listed through the fixed-price mechanism. In this mechanism, the offer price and issue size is fixed by the issuer and underwriter without knowing the demand from investors, which would mean oversubscription in using this approach is purely on the demand from investors.

Furthermore, empirical studies also indicate that when oversubscription is higher for a particular offering, the share price would rise, and the initial returns would be higher. This means that, oversubscription is one of the core aspects in the success of IPOs. However, all the studies examine the oversubscription ratio as a determinant variable. It is noted that thus far only Low and Yong (2011) have examined factors that explain the oversubscription anomaly in the Malaysian market. However, the determinant of oversubscription ratio is very much focused on information related to firm's actions during the IPO process. Therefore, studies on oversubscription are still in the preliminary stages. According to Low and Yong (2011), pre-listing information that affects the oversubscription has become prevalent, especially in countries that employ fixed-price mechanism. Thus, studies on the factors that influence oversubscription in fixed-price mechanism are relevant and important.

2.4 Independent Variables

This section review previous studies on independent variables that have been highlighted in the problem statement. There are eight independent variables in this study, which are growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism. These variables including those unique to the Malaysian market have been identified as significant determinants of oversubscription.

2.4.1 Growth Opportunity and Oversubscription

Normally, investors prefer a competitive company with growth potential, which makes the company more profitable and their investment more secure. Growth opportunities reflect that a firm is expanding and increasing its market share. Therefore, in issuing an IPO, growth opportunity plays an important role in attracting investor's attention. To issue IPOs in Malaysia, information on the utilisation of gross proceeds must be fully disclosed in the prospectus, as required by the SC. Some firms go for listing to secure funds for liquidity purposes, to repay debts, and others for the growth opportunities, whereby the funds raised from listing would be used for capital injection, expansion, and research and development (R&D). Therefore, the utilisation of proceeds for firms' growth is one of the components that could project firms' growth prospects in the future. According to Chung *et al.* (2005), firms with high growth opportunity have a lower degree of uncertainty or divergence of opinions in terms of the degree of risks. As such, this could indicate that firms with high growth opportunity are more likely to be favoured as the IPO exhibits better prospects.

In Malaysia, there is only one study to the best of the researcher's knowledge that examines the influence of growth opportunity on initial returns (Abdul-Rahim & Che-Embi, 2013). Abdul-Rahim and Che-Embi (2013) measure growth by calculating the percentage of IPO proceeds allocated for growth activities such as working capital, capital expenditure, and R&D expenditure, on IPO initial returns. Their findings show that 57 percent of the 384 companies that issue IPOs in Malaysia during the period from 1999 to 2008 allocate their proceeds for growth purposes. This study extends the estimation of growth opportunity by excluding working capital, as its function is to support day-to-day activities and not for expansion purposes (Eljelly, 2004). In addition, this study includes business expansion which affects the growth of companies

(Cliff, 1998). Thus, this study encompasses the growth opportunity impact explicitly on oversubscription ratio while earlier studies did not examine this aspect. Several reasons justify the importance of growth opportunity in explaining oversubscription. As argued by Chung *et al.* (2005), investors tend to favour firms that have growth prospects as it could generate high returns for them. Secondly, growth opportunity signals the quality of IPOs since investors believe that firms are rational if there is potential for growth and less uncertainty on future prospects. Hence, the aspect of growth opportunity cannot be ignored in the Malaysian IPO market given that information on growth prospects is available in the IPO prospectus.

There are several ways to examine growth opportunity such as earning forecast, utilisation of proceeds for growth, and R&D, as shown in the work by Abdul-Rahim and Che-Embi (2013), Chung *et al*. (2005), Lai and Lo (2012), Leone *et al*. (2007), Purnanandam and Swaminathan (2004), Rajan and Servaes (1997), and Xiao (2011).

Rajan and Servaes (1997) point out that investors become too optimistic about earnings and the growth potential of IPOs when more companies complete their IPO exercise. Based on the number of completed IPOs for the period from 1975 to 1987, it is evident that there is increasing investor interest following higher underpricing. Interestingly, when long run performance is examined, firms with low growth opportunity tend to show better performance. However, during listing, firms with high growth opportunities are found to be able to raise funds easily from IPOs. Surprisingly, the argument that growth projection is the best method to raise funds is yet to be proven empirically. Therefore, this study has intended to close the gap in the literature by examining whether growth opportunity affects oversubscription in the Malaysian IPO market.

Another finding similar to Rajan and Servaes (1997) is by Purnanandam and Swaminathan (2004) who have commented on the selection of industry peers to control for expected growth and IPO overvaluation. Observations of more than 2,000 IPOs are used over the period 1980 to 1997 and it is demonstrated that although firms have higher growth forecast, the overvalued IPOs have higher accruals and lower profitability in the long run. This implies that, in valuing IPOs, the investors are misled by optimistic growth forecasts. However, their finding also shows that growth forecasts and first day returns have a positive relationship. The growth forecast can also be used in promoting IPOs and attracting investors to subscribe.

The study by Chung *et al*. (2005) examine the relationship between initial returns of IPOs and growth opportunities. Based on the observations of 1,547 IPOs listed between May 1996 and December 2001, they conclude that if investors are optimistic of the growth potential of the IPO, it would influence the IPO pricing and increase investor's interest to subscribe to these IPOs. In a later investigation, Leone *et al.* (2007) who examine the disclosure of intended use of proceeds and IPO underpricing, concur that the disclosure of information in the prospectus might signal the quality of IPOs. They note that the disclosure of the use of IPO proceeds would assist investors to analyse the value of the stock after listing. Thus, the use of IPO proceeds is an important component to be analysed by investors before subscribing to the IPOs.

Meanwhile, Vong (2006) is of the view that before making the application, investors normally gather available information, such as firm's growth prospects. Therefore, when investors subscribe to these IPOs shares, it shows that they believe in the firm's future prospects. According to Connolly and Hirschey (2005), through R&D, which is

viewed as elusive capital, future cash flow could be ensured and accordingly market value of the company would increase. This is further supported by Chahine, Filatotchev, and Piesse (2007) who investigate the effect of R&D on growth opportunities of 831 newly listed firms in France, Germany, Italy, and the UK, for the period from 1986 to 1998. Their findings show that R&D investment and growth opportunities have a positive relationship. This is consistent with the recent study by Xiao (2011) which concludes that R&D investment does signal a firm's value (growth opportunities). This is because R&D projects provide the growth expectations from the perspective of investor interest.

The recent study by Lai and Lo (2012) examines factors that influence the initial offer price of IPOs which contribute to underpricing in Hong Kong, China. One of the factors that influences initial offer price is growth prospects. They argue that firms without favourable growth prospects have to provide inducements like discounts, as there is a premium for firms with growth prospects. They use six variables, namely initial offer price, earnings per share, leverage, retained ownership, growth prospects, and underpricing level. Their finding supports perspectives on agency conflicts as most companies listed in 2006 (45 against 53 firms) have negative growth rates compared to the first fiscal year after listing when there were discounts on the initial offer prices. The regression results are also consistent with arguments by earlier studies that firm's growth prospects are positively and significantly associated with initial returns.

In summary, previous studies have explored the issues and explain the influence of growth opportunity toward the success of IPOs. Growth opportunity is essential for a company and it remains attractive to investors and analysts when evaluating IPOs. This

study uses the utilisation of proceeds to examine growth opportunity. By examining the use of the IPO proceeds for growth activities, it would provide a signal of future prospects or value of a company to potential investors, which in turn could affect the subscription level. Although most researchers indicate that growth opportunity has an influence on the first day returns, either explicitly or implicitly, they however, did not empirically examine the relationship between IPO growth opportunity and oversubscription of IPOs. Hence, there is a need to undertake this study to fill the gap in the literature.

2.4.2 *Bumiputera* Equity Ownership and Oversubscription

The introduction of *Bumiputera* (indigenous group) equity requirement forms as part of the New Economic Policy (NEP) agenda. This makes the Malaysian IPO market significantly different from other markets around the world. The NEP provides certain privileges, in terms of redistribution of wealth to the *Bumiputera*. The regulation stipulates that a minimum of 30 percent of the total issued shares are to be allocated to *Bumiputera* investors by end of 1976. A few studies have looked at *Bumiputera* equity ownership in Malaysia, such as by Abdullah and Taufil-Mohd (2004), How *et al*. (2007), Jelic *et al*. (2001), Paudyal *et al*. (1998), Prasad *et al*. (2006), and Taufil-Mohd (2007). Most of these studies examine the impact of *Bumiputera* equity ownership on initial returns of IPOs using 30 percent shares allocation to *Bumiputer*a investors, which is before the revision takes effect. However, this study extends the earlier work by examining the impact of *Bumiputera* equity ownership on oversubscription of Malaysian IPOs, which is the ratio of the total number of shares allocated to *Bumiputera* public investors over total number of shares offered.

Among the pioneering studies on *Bumiputera* equity ownership in Malaysian IPOs is that by Paudyal *et al*. (1998) who have evaluated the performance of Malaysia's private placement of initial public offerings (PIPO) for the period January 1984 to September 1995. In their study, they have highlighted that Malaysia's PIPOs provide significantly higher initial returns as compared to other IPOs. Based on 95 observations of PIPOs, the average allocation of shares to *Bumiputera* investors (institutions and individuals) is 45.8 percent and it is oversubscribed 23 times. Their finding also suggests that Malaysian PIPOs have higher underpricing compared to other markets due to its regulation on *Bumiputera* equity ownership. However, they have not examined the influence of *Bumiputera* equity ownership on oversubscription. On the other hand, Jelic *et al.* (2001)'s finding is in line with Paudyal *et al*. (1998), that is, shares allocation to *Bumiputera* investors is 44.45 percent. Jelic *et al*. (2001) have examined the role of management's earnings forecast and underwriters in the valuation of IPOs. They argue that the management's earning forecast would influence IPO returns. Using observations of 182 IPOs listed in Bursa Malaysia during the period from 1980 to 1995, they have revealed that demand multiple, market sentiment, and book to market value are significantly related to initial returns, which support signalling theory.

This is further supported by Prasad *et al*. (2006), who examine the impact of government public policy and regulatory intervention on underpricing of Malaysian IPOs. They argue that the implementation of *Bumiputera* equity requirement policy in 1976 has influenced the underpricing level of Malaysian IPOs. Based on 75 observations of IPOs listed during the period 1976 to 1992, they find that *Bumiputera* equity ownership policy significantly and positively influences IPO underpricing. This

indicates that government intervention through *Bumiputera* equity requirement has a great impact on IPO underpricing in Malaysia, as evident from the increase in the first day underpricing by an average of 61 percent during the period after the regulation is introduced. Their finding also shows that prior to the introduction of the *Bumiputera* policy, the underpricing is 57 percent, but after the establishment of the *Bumiputera* policy, it has increased to 118 percent. Thus, it shows that the *Bumiputera* equity requirement or government intervention has raised investors' interest to subscribe to the IPOs.

There are other similar findings. How *et al*. (2007) examine the performance of share allocations of IPOs in the Malaysian Second Board companies. Based on the observations of 322 IPOs listed in Bursa Malaysia during the period from 1989 to 2000, they have revealed that the share allocation to retail *Bumiputera* investors is about 40 percent. This finding shows that, higher allocation of IPOs to *Bumiputera* investors leads mostly to underpricing. Furthermore, using the *Bumiputera* investors proportion (retail and institutional investors), they have identified a positive relationship between *Bumiputera* investors and initial returns.

In contrast to How *et al*. (2007), Jelic *et al*. (2001), Paudyal *et a*l. (1998), Prasad *et al*. (2006), and Abdullah and Taufil-Mohd (2004) all have revealed that *Bumiputera* equity ownership has a significant negative relationship with underpricing. Abdullah and Taufil-Mohd (2004) who have examined the factors that influence underpricing in Malaysian IPOs argue that government regulatory intervention through *Bumiputera* equity requirement affects underpricing of Malaysian IPOs. Using observations of 70 IPOs listed in Bursa Malaysia during the period from 1991 to 1998, they note that

higher allocation of shares to the *Bumiputera* reduces the level of underpricing. However, Taufil-Mohd (2007) is of the view that allocation of shares to *Bumiputera* investors does not affect underpricing due to the competition among them which allows the issuer to set competitive offer prices, thereby, having an insignificant effect on underpricing. According to Taufil-Mohd (2007), the issuer of IPOs might find it easier to deal with government agencies, especially if the company plans to issue more shares in the future through right issues.

In summary, there is very few empirical research on *Bumiputera* equity ownership. Some studies focus specifically on the influence of *Bumiputera* equity requirement on underpricing (Abdullah & Taufil-Mohd, 2004; How *et al*., 2007; Prasad *et al*., 2006; Taufil-Mohd, 2007). It appears that *Bumiputera* equity requirement could be a signal for good prospect of IPOs, which is in line with How *et al*. (2007) and Prasad *et al*. (2006). According to them, allocation of shares to *Bumiputera* investors would put pressure on other investors to subscribe to the IPOs and lead to increase in prices and initial returns. Most previous studies concentrate on the role of *Bumiputera* equity requirement with respect to underpricing by using *Bumiputera* equity requirement of 30 percent. However, to the best of the researcher's knowledge, no studies have been conducted on the relationship between *Bumiputera* equity ownership and oversubscription. Therefore, this study would explicitly examine the effect of *Bumiputera* equity requirement on oversubscription as past studies have not addressed this aspect. This study argues that the issuer would underprice their IPOs in order to attract *Bumiputera* investors to participate in their IPO to fulfil the 30 percent *Bumiputera* equity requirement. Accordingly, this would create competition among investors in applying for the IPOs. Thus, this would lead to higher oversubscription.

2.4.3 Revised *Bumiputera* Regulation and Oversubscription

The introduction of 30 percent *Bumiputera* equity requirement under the NEP has led to an increase in *Bumiputera* investors in the equity market. The NEP also has reduced poverty and increased the number of *Bumiputera* representation in professional and technical services, as well as at the managerial and administrative levels. Thereafter, by 30 June 2009, the proportion is reduced to at least 12.5 percent of the total enlarged issued and paid-up capital to be allocated to *Bumiputera* investors. This reflects the new equity liberalisation initiatives by the government to make the market more competitive, attractive, and open (Invest Malaysia, 2009). Most previous studies concentrate on the role of *Bumiputera* equity requirement with respect to underpricing by using *Bumiputera* equity requirement of 30 percent. However, to the best of the researcher's knowledge, no studies have been conducted on the effect of revised in the *Bumiputera* equity requirement to 12.5 percent, effective 30 June 2009.

Ariff and Shamsher (1999) argue that the high level of underpricing of Malaysian IPOs is due to government intervention. According to them, regulatory intervention such as pricing mechanism, share moratorium or lock-up, *Shariah*-compliant status, and share allocation to *Bumiputera* investors might be a possible cause of high level of underpricing in Malaysian IPOs. This is further supported by Taufil-Mohd (2007), and Yong and Isa (2003) who report higher initial return after the SC adopts the market-based fixed-price mechanism in 1995. Meanwhile for the lock-up provision, Wan-Hussin (2005) and Mohd-Rashid, Abdul-Rahim, and Yong (2014) find a positive relationship between lock-up and underpricing. For the *Shariah*-compliant status, Abdul-Rahim and Yong (2010) state that the initial return has increased in 2000 which coincides with the year that the Malaysian stock market introduced the *Shariah*-compliant status.

With regard to the *Bumiputera* equity requirement, Prasad *et al*. (2006) report that after the Malaysian government exercises the 30 percent *Bumiputera* equity requirement in 1976, underpricing has been increasing in the Malaysian IPO market. According to Prasad *et al*. (2006), the issuers need to lower their IPO offer prices in order to attract participant from *Bumiputera* investors. As a result, the underpriced IPO receives higher subscription from investors and often generates high initial return on the listing day. Prasad *et al*. (2006)'s finding is in line with Jelic *et al*. (2001), and Paudyal *et al*. (1998), that this policy has increased the underpricing level. Since the Malaysian government has liberalised the *Bumiputera* equity requirement from 30 percent to 12.5 percent, it seems that the opposite is expected to occur. It might be that the underpricing and oversubscription could reduce as the government relaxes this policy. Based on Figure 1.1, the yearly average of the oversubscription somehow shows a decreasing trend, especially after revision of the *Bumiputera* equity requirement in 2009.

However, Taufil-Mohd (2007) was of the view that allocation of shares to *Bumiputera* investors does not affect underpricing due to the competition among *Bumiputera* investors which allows the issuer to set competitive offer prices, thereby, having an insignificant effect on underpricing. Taufil-Mohd (2007) who has investigated the regulations and underpricing also mentions that the issuer of IPOs might find it easier to deal with government agencies, especially if the company plans to issue more shares in the future through right issues. This study expounds that when *Bumiputera* equity requirement is reduce, the issuer does not need to lower their IPO offer prices in order to attract participant from *Bumiputera* investors. Thus, the IPO receives lower subscription from investors due to higher offer price. In addition, there are increasing

allocation to non-*Bumiputera* investors. Thus, this will reduce competition among non-*Bumiputera* investors to subscribe to the IPO. As a result, the IPO receives lower oversubscription from investors.

2.4.4 *Shariah*-Compliant Status and Oversubscription

In Malaysia, most firms that go for listing in the Bursa Malaysia would comply with the rules of the SAC. It is not an obligation for firms to apply for *Shariah*-compliant status from the SAC. However, there are advantages of being *Shariah*-compliant securities, as the issuer would be able to sell their shares to a wider group of investors. *Shariah*-compliant IPOs undergo screening by three bodies, that is, the SC, Bursa Malaysia, and SAC, while *Shariah* non-compliant securities are only screened by the SC and Bursa Malaysia. The screening and assessment by SAC is important to avoid non-permissible elements in the investment besides also adhering to the Islamic laws and *Shariah* principles. With regard to the *Shariah*-compliant status, the screening criteria and *Shariah*-compliant index serve as a guide to investors in making investment decisions on *Shariah*-compliant equity. According to Sadeghi (2008), shares included in the *Shariah*-compliant index would usually receive positive response from investors due to the permissible element in this index. However, very few studies have been conducted on the impact of *Shariah*-compliance on IPO listing (Abdul-Rahim & Che-Embi, 2013; Abdul-Rahim & Yong, 2010; Mayes & Alqahtani, 2015).

Recently, Mayes and Alqahtani (2015) have reported that *Sharia*h-compliant status reduces the underpricing of IPOs in Saudi Arabia. Based on 72 IPOs that have been issued from 2004 to 2010, the negative impact of IPOs which carry the *Shariah*-compliant status on underpricing shows that the issuer and underwriter take into

consideration the *Shariah*-compliant status when setting the offer price. As for non-*Shariah* IPOs, the issuer and underwriter may have given greater discounts in setting the offer price to attract investors and subsequently, increase oversubscription.

In contrast to Mayes and Alqahtani (2015), Abdul-Rahim and Yong (2010) note that several factors affect the initial returns of *Shariah* sub-sample, such as the offer size and offer type. Based on observations of 386 IPOs for the period from 1999 to 2007, they have discovered the demand from investors is significantly related to initial returns of the *Shariah* sample. This is further supported by Abdul-Rahim and Che-Embi (2013) who have investigated the initial returns of Malaysian *Shariah*-compliant versus non-*Shariah* compliant IPOs. Based on 384 IPOs listed during the period of 1999 to 2007, they reveal that the initial returns of *Shariah* and non-*Shariah* compliant IPOs are not statistically different. However, there is no proof whether the firms' choice to comply with the *Shariah* regulations influences and affects investors' demand.

On the other hand, Abu-Bakar and Uzaki (2013) finding is in line with Abdul-Rahim and Yong (2010), and Abdul-Rahim and Che-Embi (2013), that is, underpricing between *Shariah* and non-*Shariah* IPOs are not statistically different. Abu-Bakar and Uzaki (2013) have examined the factors that affect underpricing of *Shariah*-compliant IPOs, such as underwriter reputation, offer price, offer size, type of market, type of industry, company age, and oversubscription. Based on 420 *Shariah*-compliant IPOs from 2000 to 2011, the finding shows that only oversubscription has a significant relationship with underpricing. Although Abdul-Rahim and Yong (2010), Abdul-Rahim and Che-Embi (2013), and Abu-Bakar and Uzaki (2013) have confirmed the

relationship of oversubscription on underpricing of Malaysian *Shariah*-compliant IPOs, however, they did not empirically prove whether *Shariah*-compliant status plays a role in explaining oversubscription of Malaysian IPOs. In addition, the sample size of these studies has not taken into consideration the *Shariah*-compliant guidelines that came into effect on 29 November 2013, which is applied in this study. Overall, this study expects that *Shariah*-compliant status would affect the oversubscription rate.

2.4.5 Revised *Shariah* Regulation and Oversubscription

The unique feature of *Shariah*-compliant status specifically on the revised regulations which has been announced on 18 June 2012 and become effective on 29 November 2013, has yet to be examined in the literature on IPOs, although it has received much attention from the regulator and issuer. Under the new *Shariah*-compliant status guidelines, companies with combined activities which are previously assessed under 10 percent and 25 percent benchmarks, could possibly be affected because currently they are assessed under the 5 percent and 20 percent benchmarks. In addition, the financial ratio benchmark (cash and debt) is applied for determining *Shariah*-compliant status securities. An in-depth study on the degree of influence of revised *Shariah* regulation or new *Shariah* screening criteria is required.

In Malaysia, the study on *Shariah* financial ratio has been conducted by Rahman, Yahya, and Nasir (2010). The study by Rahman *et al*. (2010) compares the level of liquidity and level of debt in Bursa Malaysia *Shariah* Index by adopting the Dow Jones Islamic Market (DJIM) *Shariah* screening criteria. Based on 642 companies listed on Bursa Malaysia in 2006, which is compiled by SAC, they have discovered that 44.07 percent are highly geared, as they are heavily dependent on debt to finance their

capital. The level of liquidity shows that 17 percent of the listed companies are liquid. For level of liquidity, DJIM uses the 33 percent ratio of cash and interest-bearing securities over market capitalisation, while for level of debt, DJIM uses the 33 percent ratio of total debt over market capitalisation. They have observed that only 198 of the listed companies in Bursa Malaysia meet the DJIM screening criteria, which means that 444 *Shariah*-compliant companies based on SC guidelines are not *Shariah*-compliant based on DJIM's guidelines. The differences in the *Shariah* indices are due to the micro structure of Malaysian companies, such as limited amount of capital resources. Although Rahman *et al*. (2010) have examined the level of liquidity and debt by using *Shariah* screening criteria set up by DJIM, there is a difference between the new *Shariah* criteria set by SC, where the denominator is total asset as compared to DJIM which uses market capitalisation. In addition, there is a need to examine the impact of *Shariah*-compliant guidelines that came into effect on 29 November 2013, which could influence investors to subscribe to the IPOs.

Meanwhile in another study in Malaysia on *Shariah* screening criteria, Pok (2012) has analysed whether the Malaysian *Shariah*-compliant equity is more liberal by applying the quantitative screening criteria set by three leading stock indexes, namely, DJIM, Standard and Poor's (S&P) Index, and Financial Times Stock Exchange (FTSE) *Shariah* Index. He questions whether *Shariah*-compliant organisations are financially strong. Based on 477 out of 846 *Shariah*-compliant listed companies, it is revealed that 12.16 percent meet with the DJIM criteria and 63.10 percent meet with the FTSE criteria. The different results exist because of the difference in calculating the ratios, the use of different thresholds, and different weights applied by these *Shariah* indexes. The majority of the Malaysian *Shariah*-compliant listed companies are financially

healthy. Approximately 62 to 80 percent of the companies listed under the *Shariah*-compliant stock do not fall under the financially distressed company category. As such, this stock could possibly attract international investors. Based on the discussion, both Pok (2012) and Rahman *et al*. (2010) study the effect of *Shariah*-compliant companies by adopting criteria provided by DJIM, S&P, and FTSE which differ slightly from the Malaysian *Shariah*-compliant criteria that is unique to the Malaysian market. Hence, the findings from other markets might not be suitable to be applied to the Malaysian market.

Furthermore, some studies focus on examining only the *Shariah*-compliant index screening criteria (Derigs & Marzban, 2008; Khatkhatay & Nisar, 2007). Khatkhatay and Nisar (2007) have analysed the current screening norms set by the Dow Jones Islamic Index Criteria (US), Screening Criteria of Securities Commission (Malaysia), and Meezan Islamic Fund Criteria (Pakistan). All three have different criteria in assessing the basis of *Shariah*-compliant status. Based on 500 companies in the Bombay Stock Exchange (BSE500 index), the Dow Jones Islamic Index screening criteria appeared to be the most conservative as the liquid asset ratio must be 33 percent of market capitalisation, as compared to 45 percent of total asset for the Meezan Islamic Fund Criteria. Meanwhile, the SC's criteria is the most liberal as it only takes into consideration the company's activities, that is, it must be free of non-permissible conduct, such as interest-based transactions, and doubtful transactions. According to Khatkhatay and Nisar (2007), the level of debt and level of interest earnings used for screening are considered to be too liberal and they propose the criteria to be tightened. They recommend an independent set of criteria to resolve these issues and arguments based on the Islamic perspective.

Meanwhile, Derigs and Marzban (2008) extend their work by analysing more Islamic indexes such as the Financial Times Islamic Index Series, Dow Jones Islamic Index Group, Morgan Stanley Capital International Islamic Index Series, Standard and Poor's Islamic Index Group, HSBC Amanah Fund, Meezan Islamic Fund, Dubai Islamic Bank, Azzad Islamic Fund, and Amiri Capital Islamic Fund. It is revealed that the *Shariah*-compliant equity guidelines are inconsistent with respect to permissible and non-permissible elements for the different indexes. This is because there always have been a lack of consensus (*ijma'*) among the *Shariah* scholars, who have diverse schools of thought (*madahib*) on issues related to the religion and Islamic finance in particular. The growth of the Islamic finance industry has been affected by disagreements about the acceptability of specific features of Islamic financial products, such as IPOs. There is therefore a need for *Shariah* scholars to reach consensus on adopting universal and standardised financial terms and concepts, especially in the different stock exchanges worldwide. This is important due to the heightened sense of awareness among Muslim investors to invest their excess funds in the equity market. They are forbidden to undertake any activity that is not in line with the religion or *Shariah* principles. It is believed that standardisation would support the harmonisation and integration of Islamic financial markets, which in turn could increase the demand of IPOs.

By having the new requirement, Malaysia would be on par with the screening process around the world as the Malaysian securities market is aligned with international standards (Malaysia International Islamic Financial Centre, 2013). This feature would make Malaysian IPOs more attractive to foreign investors particularly by the Middle Eastern investors who are looking for *Shariah*-compliant securities. Based on the

above discussion, this study expects that *Shariah*-compliant status would affect the oversubscription rate.

2.4.6 Cash and Oversubscription

Firms optimise their capital structure by balancing the costs associated with borrowing. They might use the cash to fund their investment or to manage their operations. Furthermore, some firms prefer to use internal financing rather than external financing. Thus, the adverse selection cost in using the firms' cash flow varies across firms and time. Moreover, there is also argument on the motive for holding cash. According to Keynes (1937), there are three motives for holding cash, namely for transaction, precautionary, and speculative purposes. However, it varies from one firm to another and there are no definitive answers. The question raised is that, does cash matter in explaining the oversubscription of IPOs? Thus far, there have been no studies that empirically examined the impact of cash ratio on oversubscription ratio during the IPO listing. This calls for a study to fill the gap in the literature.

Motives of holding cash from previous studies are mostly focused on listed firms rather than firms that are going for listing (IPOs). One of the pioneer studies on cash holding is by Miller and Orr (1966). They assumed that if firms are holding cash, it could be an opportunity cost for the firms, since it could be used for future investments to increase the firm's value. Therefore, if the investors believe the firms have excess cash for investment needs, it could influence their interest to invest in the firm's IPOs. Contrary to the finding of Miller and Orr (1966), Jensen (1986) argue that excess cash ratio is believed to create agency cost when managers might invest in projects that do not maximise shareholders' value. This has gained further support by Harford (1999),

who has examined the effect of corporate cash reserves and acquisitions. He argues that firms with large cash amounts would be more likely to make acquisitions. The finding shows that the acquisition by firms with large cash would reduce its earnings and stock price performance. Thus it might not attract investors once they realise that there is uncertainty in the future firm value.

Meanwhile, Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001) investigated whether capital structure theory is adaptable across nations with diverse institutional structures, based on a sample of 10 developing countries. They have examined the capital structure decisions of firms and provide evidence that these decisions are influenced by the same variables as observed in the developed countries. Firms that are less profitable prefer to use debt as a financing source while highly profitable firms prefer to generate more cash and use retained earnings to finance growth. This suggests that excess cash could reduce the firms' uncertainty and bankruptcy risks if the firms are unable to pay off the debt. Accordingly, firms with excess cash send a positive signal which may indirectly trigger investor interest.

In clarifying cash holdings, Dittmar *et al*. (2003) states that agency costs of managerial discretion play a vital role. Based on observations from 45 countries, covering 11,000 firms, they have discovered that firms in countries with low shareholder protection are likely to hold more cash than those in countries with high shareholder protection. The result is in line with the assumption that investors with weak shareholder protection cannot compel managers to reduce extreme cash balances. Firms have high cash balances when access to funding becomes easier and agency cost is low. This implies that, when the high cash flow is used to pay dividend, it would reduce free cash flow,

which in turn decrease agency cost. Thus, it might attract investors to invest in the company.

Meanwhile, Al-Najjar and Belghitar (2011) have investigated the association between dividend policy and firm's cash holdings based on 400 non-financial firms for the period 1991 to 2008. Their result shows that dividends, growth, leverage, risk, profitability, size, and working capital ratio affect firm's cash holdings; whereas cash, growth, risk, leverage, size, and profit have an impact on dividend policy. During the period of the research, dividend payments have not appeared to significantly influence cash holdings, nor does cash holdings have an impact on dividend policy. Furthermore, the result also shows that in emerging markets, firms tend to hold high cash levels when shareholder protection is low. Therefore, firms are reluctant to pay out cash to shareholders and invest the cash in unprofitable projects, which might reduce the equity value. This would reduce the investors' interest in the firms.

In terms of the company's cash position, each company has its appropriate cash limit to cover its position such as expenses, debt servicing, and emergency situations. Companies with large cash balances would have better cash flows and are able to sustain their businesses. This is because they would have sufficient funds to meet their obligations such as payroll and loan instalments. As such, these companies might not require loans and this would reduce interest expenses. The company would also increase its revenue through the interest earned or the profits derived through money placement in financial institutions. This would affect investors positively and they may subscribe to the shares issued by these companies. On the other hand, higher cash levels on the balance sheet also could convey a bad signal. This is because investors

would raise queries as to why the management has not invested the money and whether the company has lost its investment opportunities. In addition, there would be opportunity costs when the management spends on luxury items, given the large cash balances. The company would also carry agency costs when holding large cash balances and tend to invest in projects that do not maximise shareholders' value. The management might have self-interest in the usage of excess cash. This would limit a company's capacity to grow. In this situation, investors would perceive excess cash negatively and might not subscribe to the shares of such firms. Based on the above discussion, this study hopes that cash would affect the oversubscription rate.

2.4.7 Debt and Oversubscription

Capital structure of a firm is a mixture of debt and equity. Generally, firms prefer to use debt for financing. The main reason is that tax deductibility of interest brings down the cost of debt financing and makes debt capital the least expensive external financing available to most firms. However, there is also a downside of using debt financing, since firms are exposed to the danger of becoming bankrupt in the event they are unable to service their debts. A question is raised on whether or not investors would subscribe to the shares of firms that use debt financing, which is associated with risk. Myers (2001) is of the view that firm's value would increase with the size of the debts, but there would be financial distress costs when the profits from the investment are lower that the operating cash flow. Myers (2001) argument is in line with Kim and Sorensen (1986) who have mentioned that firms with high growth opportunities use low debt ratios. Based on the above argument, debt ratios in IPOs prior to listing provide a signal to investors when making decisions to subscribe to the IPOs.

Meanwhile, Friend and Lang (1988) argued that debt is used to reduce agency cost and this serves as a signal to investors. Their finding also shows that the debt ratio increases as the management shareholdings increase and support Jensen (1986), where debt can mitigate agency conflicts and accordingly protect shareholder's interest in maximising wealth. This would provide a positive signal to the market where investors might purchase the companies' shares. Contrary to the findings of Kim and Sorensen (1986) and Myers (2001), Friend and Lang (1988) find that high growth firms use more debt for financing purposes. Whited (1992) believes that small firms would have difficulty in borrowing as they lack liquidity and collateral to obtain loans. Therefore, the cost of borrowing for such firms is high due to information asymmetry problems and this would affect the performance of small firms. The shares of such firms would be unattractive to investors.

In the UK, Lasfer (1995) examines the effects of agency costs on firm's capital structure decision making. His study indicates that agency cost is the main factor affecting corporate borrowings. His results demonstrate that debt alleviates the free cash flow issue as firms are highly geared and that firms are more prone to expansion and less inclined to bankruptcy. This is in contrast to the argument made by Friend and Lang (1988), Kim and Sorensen (1986), and Myers (2001) who are of the view that firms with high debts in the capital structure have less growth options.

Based on previous studies (Friend & Lang, 1988; Jensen, 1986; Kim & Sorensen, 1986; Lasfer, 1995; Whited, 1992), it is evident that the size of firms' debt is of concern to investors. However, the literature review thus far does not provide any empirical studies on how the debt proportion of the IPO prior to listing influences investor

demand (oversubscription ratio). In order to expand, companies usually use debt financing to finance their business operations such as via working capital and capital expenditure. In raising capital through debt, a company has to repay the debt and interest to the bank or creditor. In addition, debt resolves the company's short term needs and also finances its projects or investments. Furthermore, the company also enjoys tax advantages as interest is tax deductible. Therefore, a company is able to boost returns with debt financing so long as things are going well. However, a large debt balance could also spell trouble for a company. A company with excessive debts use much of its income for loan repayments, which would increase costs and limit the company's capacity for growth. A company exposed to high debt levels also faces the risk of default. Hence, debt ratio plays a vital role in influencing the value of a company. Rational investors would normally evaluate the debt ratio of a company before making his or her investment.

In summary, firms with high debt levels might signal positive or negative signals to investors depending on the costs and benefits of issuing debt. Therefore, the reaction of the investors, whether to subscribe to the shares of firms with high debts prior to IPO listing is still unclear as far as the literature is concerned, and yet to be proven empirically. Overall, this study expects that debt would influence the oversubscription rate.

2.4.8 Pricing Mechanism

There are a number of studies that have examined and compared IPOs that employed different types of offering methods, such as Benveniste and Busaba (1997), Bubna and Prabhala (2006), Chahine (2007), Chowdhry and Sherman (1996), Cornelli and

Goldreich (2003), Derrien and Womack (2003), Low and Yong (2011) and Welch (1992). The model of Chowdhry and Sherman (1996) demonstrate that fixed-price mechanism that is generally used in most Asian countries and UK, and that leads to larger underpricing and oversubscription. This is supported by Bubna and Prabhala (2006) who found that oversubscription ratio differed across pricing mechanisms, and oversubscription and underpricing are higher in fixed price mechanism than book-building mechanism.

On the other hand, Benveniste and Busaba (1997) noted that fixed price mechanism had higher potential to generate demand cascades which closely resembled that of Welch (1992). According to Benveniste and Busaba (1997), investor demand is said to be highly elastic; an increase in the IPO price has the consequence of creating a negative demand cascade. In other words, lowering IPO offer price would signal the investors and has the advantage of increasing investor demand because the IPO price is established without soliciting investor information. This is supported by low and Yong (2011) who found that lowering the offer price had the advantage of increasing investors demand, and this in turn would reduce the probability of issue failure.

Furthermore, in the fixed-price mechanism, the offer price of the IPOs is fixed by the issuer and underwriter without the knowledge of the demand from investors. In contrast, under the book-building mechanism, firms are allowed to extract information on shares demand from investors before setting the final price and issue size. In addition, the information obtained from book-building process provides issuer and underwriter the option or flexibility to make adjustment of price and issue size of IPO. As a result, the level of oversubscription and underpricing is lower for book-building

mechanism as compared to fixed-price mechanism. Since the book-building mechanism allowed issuer and underwriter to extract information on shares demand from investors before setting the final price and issue size, this study expects that the book-building pricing mechanism could influence the level of IPO oversubscription.

2.5 Control Variables

In assessing the effect of the eight independent variables on oversubscription of IPOs, this study also controls for six other variables that might affect investor demands. The firm's characteristics, such as market conditions, retail investors, investor sentiment, offer size, listing board, and financial crisis serve as control variables. The control variables are market condition, retail investor involvement, investor sentiment, offer size, listing board and financial crisis. These control variables are selected as they have significant impact in IPO research as showcased in previous studies. The following paragraphs clarify the association between each of the control variables and oversubscription.

2.5.1 Market Condition and Oversubscription

The hot and cold markets are firstly identified by Ibbotson and Jaffe (1975) in the US market during the period from 1960 to 1970 and this is subsequently reconfirmed by Ritter (1984), whose study covered the period from 1960 to 1982. As suggested by Helwege and Liang (2004), the IPOs hot cycle is known as a period of uncommonly large offer size, high oversubscription, and high initial returns (price appreciation) during the IPO listing. On the contrary, the cold market is known as a period of small offer size of new issues, low initial returns (prices remain stagnant), and fewer subscriptions. The hot market condition influences investor confidence. As argued by

Lowry and Schwert (2001), and Loughran and Ritter (2002), the market conditions are precursor for the investor to subscribe to new issues. When more companies issue new shares in hot years, there would be a great demand for the shares, and the oversubscription ratios and average underpricing would be high (Ritter, 1984). The fact is that more companies would seek listing when market conditions are good (also called a hot market) than when the market is poor (also called cold market) (Ritter & Welch, 2002). Meanwhile, Agarwal *et al*. (2008) define the hot (cold) market based on the large (small) number of IPOs and high (low) level of investor demand. Accordingly, Ma and Faff (2007), and Mahmood, Xia, Ali, Usman, and Shahid (2011) argue that the market conditions prior to IPO listing does influence investors' sentiment and also the oversubscription rate. Based on the above discussion, this study expects that market condition would influence the oversubscription rate.

2.5.2 Retail Investor Involvement and Oversubscription

Retail investor involvement refers to public investors or uninformed investors who are ignorant of the true value of IPOs. Retail offering portion is generally used as a proxy for uninformed investors (retail investors). Easley and O'Hara (2004) noted that uninformed investors own a substantial number of shares which carry bad news, and fewer stocks which carry good news. Uninformed investors always hold some risky assets. The winner's curse theory by Rock (1986) suggests that uninformed investors would receive more allocation of the overpriced IPO in the absence of informed investors. Rock (1986) is of the view that uninformed investors receive bigger IPO allocations without realising that the IPOs are overpriced and obtained smaller quantities of underpriced IPOs, as those with good prospects have already been taken up by the informed investors, particularly institutional investors. Thus, uninformed

investors would receive negative returns from IPOs. Therefore, investors are unlikely to subscribe to an IPO that has large allocations for retail investors as they feel there is a high probability that the IPO is overpriced. Based on the above discussion, this study expects that the involvement of retail investors would have effect on the oversubscription rate.

2.5.3 Offer Size and Oversubscription

The offer size of IPO is the proceed of the IPO. The offer size (number of new shares multiply with offer price) is used as a proxy for the supply of IPOs. Numerous studies such as Chalk and Peavy (1987), Clarkson (1994), Megginson and Weiss (1991), Mok and Hui (1998) and Yu and Tse (2006) mentioned that supply of IPOs has a negative relationship with initial returns. Ritter (1987) and Hanley (1993) documented that during pre-market period, issuers or companies create pre-offer alterations to the issue size. Theoretical analysis of Benveniste and Busaba (1997) proved that information from the book-building procedure enabled the issuing firm to alter the IPO offering size, an extremely economical source of raising capital. However, this would not be possible for IPOs offered under fixed price mechanism. This is because the issue size and IPO price are fixed independently of investor information. Since the offer size is fixed and built up without information on investor demand, this study expects that the offer size could influence the level of IPO oversubscription.

2.5.4 Investor Sentiment and Oversubscription

In general, investor sentiment plays a vital role in inducing demand for IPOs (Low & Yong, 2011). Usually, investors would be interested to purchase an IPO when the returns are higher on the first day of listing because it creates a good impression in the

market. This argument is further supported by Baker and Wurgler (2006), that is, higher initial returns are related to a period of high investor enthusiasm. Such enthusiasm pushes the IPO price upwards due to speculative activity and subsequently generates higher initial returns on the day of listing. Loughran *et al*. (1994) observe that the demand from investors would increase when initial returns are high and investors are well informed about the shares. The period of high initial returns or price appreciation during IPO listing, is also known as the IPO hot cycle (Bayley, Lee, & Walter, 2006; Helwege & Liang, 2004). Ibbotson and Jaffe (1975) have measured the hot issue market as the average first-day returns of IPO in the listing month, which is higher than the median first-day returns. Subsequently, Bayley *et al*. (2006) also have used a similar measurement for hot issue market. The above discussion shows that investors' sentiment is one of the key features in inducing investors' subscription of an IPO.

2.5.5 Listing Board and Oversubscription

Listing board refers to either the Main Market or the ACE Market of Bursa Malaysia. Effective 3 August 2009, the merger between Main Board and Second Board has been known as the Main Market, while MESDAQ is rebranded as the ACE Market. Taufil-Mohd (2007) notes that investors are required lower underpricing from firms that are seeking listing on the Main Board. Taufil-Mohd (2007)'s finding is in line with Yong (2009) who states that the Main Board registers a lower initial return while the higher initial return is registered by the MESDAQ. According to Yong (2009), MESDAQ is considered the most risky IPOs as it is an ideal market for small and technology stocks. In addition MESDAQ is also the ideal market for new firms which are run by entrepreneurs who are looking for capital by listing their IPO. Therefore investors

seem to demand higher initial return. Abdul-Rahim and Yong (2010) support the finding by Taufil-Mohd (2007) and Yong (2009). There are two possible explanations by Abdul-Rahim and Yong (2010) which are firstly associated with the resulting prices (or returns) in a particularly supply-demand relationship, and secondly links with the risk-return trade-off whereby smaller firms are commonly associated with greater risks. This implies higher return is necessary to compensate the investors. Based on the above discussion, this study expects that firms listing their IPOs on the Main Market would influence the oversubscription rate.

2.5.6 Financial Crisis and Oversubscription

The financial crisis represents the period of global financial crisis that affected the Malaysian economy. Abdul-Rahim and Yong (2010) note that underpricing of Malaysian IPOs is decreasing during the financial crisis in 1997 to 1998. This is consistent with past studies on the Malaysian market such as by Ahmad-Zaluki, Campbell, and Goodacre (2011), and Mitton (2002) spanning the 1997 and 1998 financial crisis. According to Ahmad-Zaluki *et al*. (2011), the performance of Malaysian IPOs have worsened after 1997 following the onset of the Asian financial crisis. It was observed that most investors would not apply for IPO shares when the market turns bearish. However, Taufil-Mohd (2007) has revealed that during the financial crisis, issuers are willing to provide more underpricing to investors in order to attract investors to subscribe to their IPOs. Based on the above discussion, this study expects that financial crisis would impact the oversubscription rate.

2.6 Chapter Summary

It is vital to understand the factors that lead to oversubscription, as they assists in the decision making to go public, a very critical stage in the life of a firm. Going public indicates the firm's ability to access capital for current expansion and future growth. Hence, it is essential to understand factors that might influence oversubscription of IPOs. This study proposes eight pre-listing information, namely growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism, which theoretically have the potential to influence IPO demand, but have not been empirically examined by other researchers. In addition, consideration on the revised regulations such as *Bumiputera* equity requirement and *Shariah*-compliant status are also examined as these would have an impact on oversubscription ratios of IPOs. Six controlled variables are included in the analysis. These are the market condition, retail investor involvement, investor sentiment, offer size, listing board and financial crisis.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter starts with a discussion on the research paradigm. Next, the data source and sample description are deliberated. This is followed by the research framework, as presented in Figure 3.1. Subsequently, the measurement of variables used in this research is discussed, followed by the hypothesis of this research that was initially developed. Finally, the research method is also described.

3.2 Research Paradigm

The term paradigm refers to a research culture with a set of assumptions, beliefs, and values that a community of researchers has common perception regarding the nature and conducting of research (Kuhn, 1977). According to Kuhn (1977), a paradigm is a "worldview" or a set of assumptions about how things work. Research paradigm in social sciences suggests various assumptions of research approach standards and criteria to generate reliable and valid information about the social phenomena under investigation. Burrell and Morgan (1979) have contended on four types of philosophical assumptions to explain social phenomena, which are, ontology, epistemology, human nature, and methodology.

Considering social reality, one would use a view of assumptions on the top of other things. There are two extreme points of view. One opines that social reality is something that is hard, external, and objective. In this view, scientific activities focus on the analysis of relationships and the order that is formed among various elements in it. The attention is primarily lies in the identification and definition of these elements and finding the way in which the existing relationships can be explained.

The underlying philosophy of this research is rooted to the positivist objectivism paradigm (Kerlinger, 1986). Positivism is an epistemology that seeks to explain and predict what will happen in the social world by seeking order and causal relationships between the related elements. Therefore, all research process, procedure and activities derived from this paradigm considers reality as the actual and present phenomena that would be discovered in future (Smith, 1998). In addition, this research stood on the objectivist's viewpoint in which the knowledge already exists. Given the fact, this study focuses on testing the established theories; therefore, the results could be used to compare whether there are similarities, differences, strengths, and limitations with other similar studies that have been conducted. Since the objectivists profess knowledge is objective, this study regards that this phenomenon is standalone, factual and free from prejudices (Smith, 1998).

3.3 Data Source

The main source for gathering data was from IPO prospectuses which were downloaded from the Bursa Malaysia website. From these IPO prospectuses, the data set contains information related to utilisation of proceeds, offer size, offer price, closing and opening prices on listing day, listing board, number of paid-up capital and enlarged issue, private placement, retail offering, *Shariah*-compliant status, total liabilities, total cash, total assets, and the ratio of number of shares allocated for *Bumiputera* investors, and the pricing method. The weighted average of the three-month FTSE EMAS index returns prior to listing was taken from DATASTREAM. Meanwhile, the Malaysian Issuing House (MIH) and Tricor Investor & Issuing House Service (TIIH) reported the oversubscription ratio for each IPO.

3.4 Sample Description

The IPO sample in this study was selected from IPOs listed on Bursa Malaysia from January 2000 to December 2015. The starting point was set after taking into consideration the time when Malaysia launched the Kuala Lumpur *Shariah* Index (KLSI) in April 1999. KLSI outlines the performance of *Shariah*-compliant equities in Bursa Malaysia. During the study period that spanned 16 years, several changes took place in Bursa Malaysia. In June 2009, the SC revised the listing requirements regarding the allocation of shares to *Bumiputera* investors. This was an attempt by the government to make Bursa Malaysia become more attractive and competitive, especially to *Bumiputera* investors (Invest Malaysia, 2009). The SC also revised the *Shariah* screening criteria to determine *Shariah*-compliant status for companies seeking listing on Bursa Malaysia, which was put into effect in November 2013.

There was a total of 540 IPOs issued during the period of study, as shown in Table 3.1. For this study, the IPO sample was selected among those offered as private placements, offered for sale, and public issues, or any arrangements comparable to the criteria set by Abdul-Rahim and Yong (2008). However, financial companies which include banks, financial services, insurance companies, and real estate investment trusts (REITS) were excluded from the sample due to the differences in the presentation of their financial statements (see Abdul-Rahim & Yong, 2010; Fama & French, 1992; Yong, 2009). In addition, the justification for the exclusion of the financial firms is due to the high leverage for these institutions and it probably does not carry the same meaning as non-financial institutions, where high leverage is more likely associates to distress (Fama & French, 1992). Furthermore, financial institutions are regulated by Bank Negara Malaysia (BNM) and under the Financial Services Act 2013. On the

other hand, non-financial institutions are under Company Act 2016 are under the Companies Commission of Malaysia (SSM). Besides, in line with Abdul-Rahim and Yong (2008), to avoid less meaningful outcomes (uncommon types of issues), this study further restricted the sample based on the following criteria:

i. Restricted public issue;
ii. Restricted offer for sale;
iii. Restricted offer for sale to eligible employees;
iv. Restricted offer for sale to *Bumiputera* investors;
v. Special and restricted issue to *Bumiputera* investors;
vi. Special issue and tender offer.

Furthermore, to eliminate the effects of outliers on the results of regression, they were excluded from the analyses. Outliers were identified by the studentized residuals approach. Thus, a total of 130 IPOs was excluded from the sample based on the above described selection criteria, which meant that the final sample of 410 IPOs was estimated in the regression model. The summary of IPO issue and the final sample by year of listing from 2000 to 2015 are presented in Table 3.1.

Table 3.1
Summary of IPOs by year of listing from 2000 to 2015

Listing Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	**Total**
IPO	38	20	51	58	72	79	40	26	23	14	29	28	17	17	15	13	540
Less: Finance & REITs	4	4	6	4	5	11	7	7	6	5	10	4	6	4	3	4	90
Less: Uncommon type	0	0	2	11	6	4	2	0	0	0	0	0	1	0	1	1	28
Less: Outliers	0	0	0	2	3	0	1	0	0	0	0	3	1	0	2	0	12
Observation	34	16	43	41	58	64	30	19	17	9	19	21	9	13	9	8	410

Source: Developed for this research

3.5 Research Framework

In order to achieve the objectives of this study, the following research framework is presented.

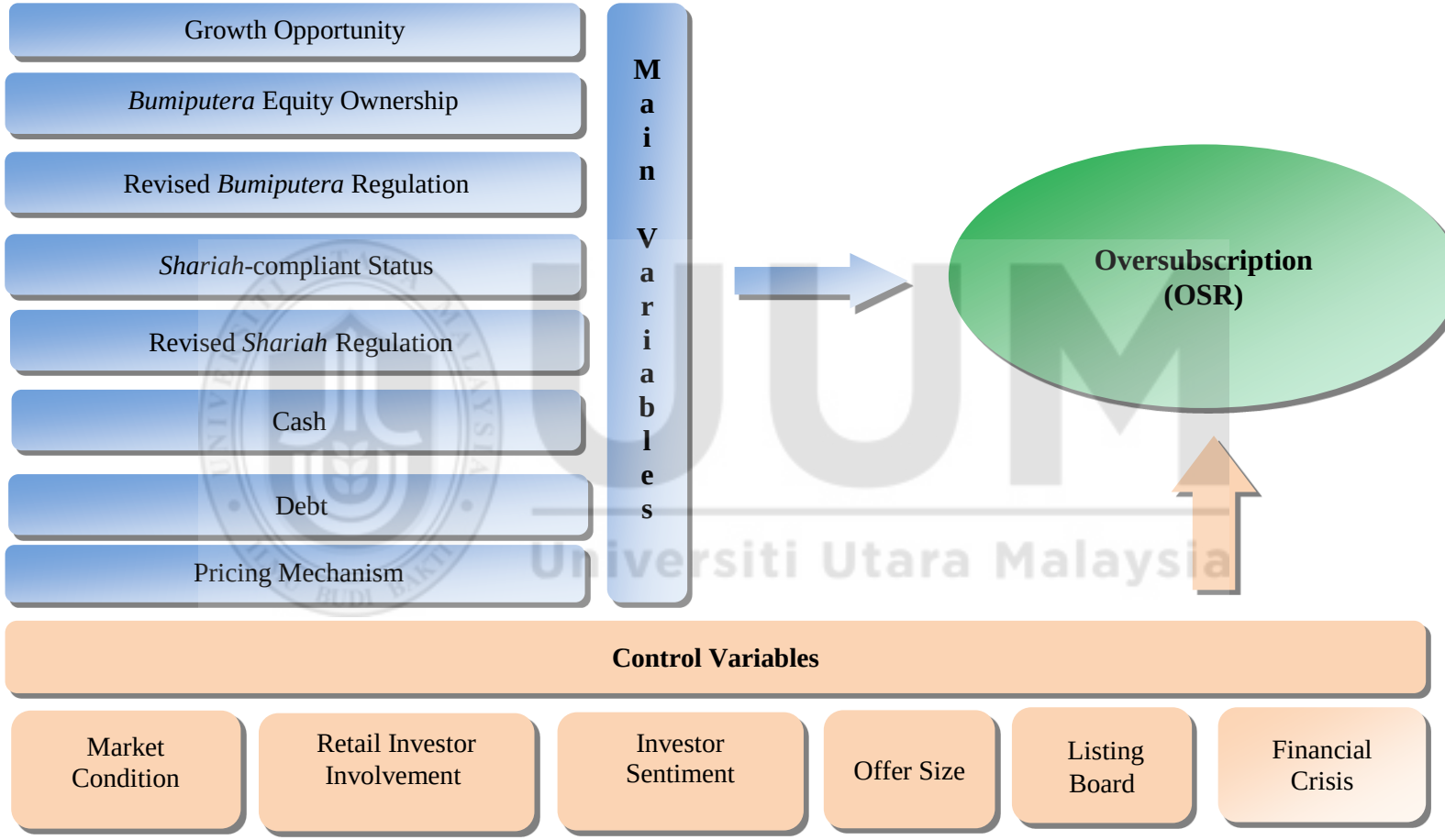

Figure 3.1
Research Framework

Figure 3.1 shows the independent and dependent variables used in this study. The main variables comprise of growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism. These variables are regressed against the dependent variable, oversubscription while controlling for market condition, retail investor involvement, investor sentiment, offer size, listing board and financial crisis. Detail description of these variables are discussed in the next sub-section.

3.5.1 Oversubscription

The dependent variable (DV) in this study was IPO oversubscription ratio (OSR), which was determined by dividing the total number of shares demanded by investors over the total number of shares offered. In this study, OSR specifically focused on the investors' pre-listing demand for the IPOs (Agarwal *et al*., 2008; Low & Yong, 2011). The higher the OSR of the particular IPO, the more likely it is to show strong interest and confidence from investors for that IPO. For example, an oversubscription ratio of five times indicates that for every single unit of IPO share, there are six demands from investors to subscribe to that IPO share. The OSR is determined as follows:

$$OSR = \frac{Total\ number\ of\ shares\ demanded\ from\ an\ IPO}{Total\ number\ of\ shares\ offered\ in\ an\ IPO} \quad (1)$$

3.5.2 Growth Opportunity

Growth opportunity in this study was defined as the percentage of proceeds utilised for investment purposes over total proceeds which are available in the IPO prospectus. In previous study, Abdul-Rahim and Che-Embi (2013) measured growth opportunity

as the utilization of IPO proceeds for working capital, capital expenditure, and R&D expenditure in influencing the initial return of IPOs. In this study, working capital was excluded due to its function to support day-to-day activities and not for expansion (Eljelly, 2004). Therefore, this study measured growth opportunity as the utilisation of IPO proceeds for business expansion, capital expenditure, and R&D expenditure. The higher percentage of growth opportunity of the particular IPO shows that the capital raised from the proceeds would be used for the expansion of the company. Thus, this variable was expected to receive strong interest from investors and have an impact on oversubscription of IPOs. The growth opportunity (GOP) is determined as follows:

$$GOP = \frac{Utilization\ of\ proceeds\ for\ investment\ opportunities}{Total\ proceeds} \quad (2)$$

3.5.3 *Bumiputera* Equity Ownership

The *Bumiputera* equity ownership is one of the distinct characteristics of Malaysian IPOs. The inclusion of this variable would assist in understanding the phenomenon of oversubscription in Malaysia. Previous studies used the proportion of shares allocated to *Bumiputera* investors to examine the influence on performance of IPOs. This study used total number of shares allocated to *Bumiputera* public investors over total number of shares offered, since *Bumiputera* public investors represent *Bumiputera* equity requirement under retail offering. This study proposed that when the proportion of shares to *Bumiputera* is high, it would increase the oversubscription ratio as the issuer needs to underprice the IPO in order to attract *Bumiputera* investors. The *Bumiputera* equity ownership (BEQ) is determined as follows:

$$BEQ = \frac{Shares\ allocated\ to\ Bumiputera\ public\ investors}{Total\ number\ of\ shares\ offered} \quad (3)$$

3.5.4 Revised *Bumiputera* Regulation

The revised *Bumiputera* equity requirement policy from 30 percent to 12.5 percent of the number of enlarged issues effective on 30 June 2009 reflected the government's efforts to make the market more attractive and competitive. In this study, the revised *Bumiputera* regulation was proxied by BUMIΔ. BUMIΔ is a dummy variable takes the value of "1" for the new *Bumiputera* equity ruling and "0" otherwise. This study proposed that when the allocation of shares to *Bumiputera* investors is reduced, it would decrease the oversubscription ratio as issuers do not need to steeply underprice their IPOs in order to attract *Bumiputera* investors.

3.5.5 *Shariah* Compliant Status

The *Shariah*-compliant status indicates that the company's activities are free from non-permissible activities. The *Shariah*-compliant status is given by SAC, following a screening process. In this study, *Shariah*-compliant status was proxied by a dummy *DSHARIAH*, for which "1" represents *Shariah*-compliant status and "0" otherwise. This study proposed that when a firm complies with the *Shariah* requirement, the shares could be sold to a wider group of investors, comprising both Muslim and non-Muslim investors and thus, it would increase the subscription rate.

3.5.6 Revised *Shariah* Regulation

The revised *Shariah*-compliant status guidelines, which was effective on 29 November 2013, reflected SAC efforts to increase the development and growth of Islamic finance. In this study, the revised *Shariah* regulation was proxied by SHARIAHΔ. SHARIAHΔ is a dummy variable that takes a value of "1" following new *Shariah* guidelines and "0" otherwise. Under the new *Shariah*-compliant status guidelines, companies with

combined activities, which were previously assessed under 10 percent and 25 percent benchmarks, could possibly be affected because currently they are assessed under the 5 percent and 20 percent benchmarks. The new guidelines also include the introduction of financial ratio (cash and debt) in determining a *Shariah*-compliant status which is aligned with international *Shariah* standards. The new benchmark would ensure that the company's income is safe from non-permissible activities and the investment is within a reasonably tolerable level. This study proposed that the implementation of the new *Shariah* guidelines would increase oversubscription.

3.5.6 Cash

Cash balance is the liquid asset in the balance sheet. Cash ratio is derived by taking the sum of cash and cash-equivalent divided by the total assets (Bates, Kahle, & Stulz, 2009; Dittmar *et al*., 2003). The cash ratio reveals the proportion of a company's total assets invested in cash, which indicates the liquidity position of the company. A company would be more liquid when cash ratios are higher. However, holding too much cash could potentially result in loss of earnings. Meanwhile, the higher the cash holdings held by a firm, the higher the probability that future investment opportunities could be financed (Al-Najjar, 2013; Bates, 2005; Booth *et al*., 2001; Miller & Orr, 1966; Opler, Pinkowitz, Stulz, & Williamson, 1999). Accordingly, positive signal on growth opportunity of companies would attract investors to subscribe to their IPOs. However, Jensen (1986) argued that higher excess cash could be used by managers to undertake negative net present value (NPV) projects. In this case, investors would be wary of high cash carrying companies. The cash measurement used in this study is as follows:

$$CASH = \frac{Total\ cash}{Total\ assets} \qquad (4)$$

3.5.7 Debt

Debt is a company's liabilities in the balance sheet. Debt ratio is derived by dividing total liabilities with total assets (Campello, 2006; Cleary, 1999; Friend & Lang, 1988; Whited, 1992). The debt ratio (DR) measures financial leverage, which indicates the proportion of the firm's total assets that are funded through debt. A higher debt ratio would reflect that a company is highly levered and in a bad position because most of the company's assets are funded through debt. Therefore, a higher percentage signals the vulnerable position of a company and accordingly increases the risk. Therefore, this study argued that investors would shun away from subscribing to IPOs of a company with higher debt. Debt ratio is defined as follows:

$$DEBT = \frac{Total\ liabilities}{Total\ assets} \quad (5)$$

3.5.9 Pricing Mechanism

There are a few offering methods in pricing the IPOs such as auction, book-building and fixed offer price. In Malaysia, the IPOs are generally issued under fixed-price mechanism. However, there are some companies that issue their IPOs under book-building mechanism, especially for large size IPOs. In this study, pricing mechanism was proxied by a dummy *DMECHANISM* that took a value of 1 if book-building mechanism is used in pricing the IPOs and 0 if fixed-priced mechanism was used. Since the book-building mechanism was used by large size IPOs in pricing their IPO, it is conjectured that the book-building mechanism might reduce the likelihood of IPO oversubscription because more shares are available to potential investors for subscription.

3.5.10 Market Condition

Prior to IPO listing, market condition is one of the significant determining variables in predicting demand and returns of IPOs. Market environment influences the enthusiasm or interest of investors to subscribe to IPOs. Derrien and Womack (2003) found market returns as significant ex-ante predictors of the level of underpricing of French IPOs. In their study, the market return was proxied by the three months of market prices prior to listing. Furthermore, they used three months of weighted average of returns before the offering date, as their emphasis was on investors' perception of the effect of the current period compared to the earlier two months. The results showed that, information from market conditions not only affected the number of successful listings, but it is also vital in determining the demand for IPOs. Since the IPO sample for this study was from various industries and of varied sizes, the EMAS index[VII] used for obtaining market prices was deemed appropriate. In this study, the weighted average of three months of the EMAS index return prior to IPO listing was used to represent the market condition. Therefore, this study hypothesised that market condition is positively related to oversubscription ratio. The market condition (*MKTCON*) is calculated as follows:

$$MKTCON = \frac{3}{6}MR_{-1} + \frac{2}{6}MR_{-2} + \frac{1}{6}MR_{-3} \quad (6)$$

$$MKTCON = \left(\frac{\sum_{t=-3}^{-1}(4+t)MR_t}{6} \right)$$

Where,

t= -1 is the return in the month prior to listing and

t= -3 is the return in the three months prior to listing,

MKTCON = market condition prior to offering,

MR = Market returns of Emas Index during month t.

[VII] The EMAS index comprised of middle and large market capitalization constituents of the Bursa Malaysia 100 index and Bursa Malaysia Small Cap Index.

3.5.11 Retail Investor Involvement

Retail investors can be regarded as individuals who purchase securities to be kept in their personal accounts in a smaller amount, compared to securities purchased by institutional investors. In the literature, retail investors are considered as uninformed investors. According to Rock (1986), shares with a larger allocation to retail investors become a curse to uninformed investors and the shares would generate negative returns as they are overpriced. Therefore, investors tend not to subscribe to shares of companies with a larger allocation to retail investors. Therefore, this study hypothesised that retail investor involvement is negatively related to oversubscription ratio. In this study, the percentage of retail offering (*RETAIL*) over the total number of shares issued was used for retail investor involvement.

$$RETAIL = \frac{Shares\ offered\ to\ retail\ investors}{Total\ number\ of\ shares\ issued} \quad (7)$$

3.5.12 Offer Size

Offer size plays a pertinent role in the issuance of IPOs. A theoretical analysis by Benveniste and Busaba (1997) proved that information from book-building procedure enables issuing firms to alter the IPO offering size and this serves as an extremely economical source of raising capital. However, this would not be possible if the IPOs are placed under a fixed-price mechanism, which is because the issue size and IPO price have been fixed without revealing much information to investors. Due to the scenario in which the offer size has been put in place and created without considering investors' demand, the offer size could influence the level of IPO oversubscription. Small issue size would increase the probability of IPO oversubscription due to less issues being offered to prospective investors. In this study offer size (*SIZE*) is measured as natural logarithm of the total number of shares issued times the offer price.

3.5.13 Investor Sentiment

Investor sentiment in this study was proxied by initial returns. Initial returns reflect the percentage changes between closing and offer prices on the listing day. In this study, the IPOs were grouped into high and low initial returns. Dummy initial return (*DRETURN*) was used as a proxy for investor sentiment, as suggested by Baker and Wurgler (2006), Bayley *et al*. (2006), and Low and Yong (2011). Following Low and Yong (2011), if the initial return of an IPO in a particular quarter is greater than the average return of all IPOs in that quarter, then a dummy of "1" is assigned to that IPO and "0" otherwise. Assuming that investors are optimistic of the IPO, it would increase interest or demand from investors to subscribe to the IPO. Therefore, this study hypothesised that when optimism among investors is high, it would increase the oversubscription ratio.

3.5.14 Listing Board

Effective on 3 August 2009, the Main Board and Second Board of Bursa Malaysia were merged to form the Main Market, while MESDAQ was rebranded as the ACE Market. Firms listed on the Main Market are usually larger, have higher profits, and have been in existence longer than those firms on the ACE Market; while firms listed on the ACE Market usually are small or new, which are looking for capital by listing their IPOs. In this study, the listing board is proxied by DBOARD, which is a dummy variable that takes a value of "1" if an IPO is listed on the Main Market and "0" if it is listed on the ACE Market. Large firms which are more established may not be required to underprice their IPOs as compared to small or new firms. Small or new firms need to underprice their IPOs in order to attract investors to subscribe to their IPOs. Therefore, this study hypothesised that IPOs by firms listed on the Main Market would receive a lower oversubscription rate.

3.5.15 Financial Crisis

The financial crisis is the period of global financial crisis 2008-2009 that affected the Malaysian economy. Peters *et al.* (2012) and Purfield and Rosenberg (2010) have studied the impact of global financial crisis from 2008 to 2009. Thus, this study defined the financial crisis variable (*DCRISIS*) as the period of global financial crisis 2008-2009. In this study, financial crisis was proxied by *DCRISIS*, which is a dummy variable that takes a value of "1" if the IPO was taken during the global financial crisis, "0" if the IPO was taken at any other time. During the global financial crisis, investors tended to avoid the stock market due to bearish conditions. Therefore, this study conjectured that the global financial crisis during the period from 2008 to 2009 (*DCRISIS*) and oversubscription are negatively correlated.

The variables and measurements are summarized in Table 3.2.

Table 3.2
Summary of Variables, Measurements and Sources

Variable	Measurement	Source
Oversubscription ratio (OSR)	Total number of shares demanded by investor to total number of shares offered to the public.	Agarwal *et al*. (2008), Low & Yong (2011).
Growth Opportunity (GOP)	Percentage of proceeds utilized for investment opportunities over total proceeds.	Abdul-Rahim & Che-Embi (2013)
Bumiputera Equity Ownership (BEQ)	Ratio of the total number of shares allocated to *Bumiputera* public investors to total number of shares offered to public.	Jelic *et al*. (2001), How *et al*. (2007), Abdullah and Taufil-Mohd (2004)
Revised *Bumiputera* (BUMI Δ)	Dummy variable that takes a value of 1 following new *Bumiputera* equity ruling and 0 otherwise.	
Shariah-compliant Status (DSHARIAH)	Dummy variable that takes a value of 1 for *Shariah*-compliant IPOs and 0 otherwise.	Abdul-Rahim & Che-Embi (2013)
Revised *Shariah* (SHARIAH Δ)	Dummy variable that takes the value of 1 following new *Shariah* guidelines and 0 otherwise.	
Cash Ratio (CASH)	The percentage of total cash to total assets	Bates *et al*., (2009), Opler *et al*. (1999)
Debt Ratio (DEBT)	The percentage of total liabilities to total assets	Campello (2006), Whited (1992)
Pricing Mechanism (DMECHANISM)	Dummy variable that takes a value of 1 if book-building mechanism is used in pricing the IPOs and 0 if fixed-priced mechanism is used	
Market Condition (MKTCON)	The weighted average of the three-month FTSE EMAS return prior to IPO listing.	Derrien and Womack (2003)
Retail Investor Involvement (RETAIL)	Percentage of shares offered to retail investors over total number of shares issued.	Kandel *et al*. (1999), Agarwal *et al*. (2008)
Offer Size (SIZE)	The natural logarithm of the total number of shares issued times the offer price.	Mohd-Rashid *et al*. (2014)
Investor Sentiment (DRETURN)	Dummy variable that takes a value of 1 if the initial return of an IPO in a particular quarter is greater than the average return of all IPOs in that quarter, and zero otherwise.	Bayley *et al*. (2006), Low & Yong (2011).
Listing Board (DBOARD)	Dummy variable takes the value of 1 if an IPO is listed on the Main Market and 0 if listed on the ACE Market.	Taufil-Mohd (2007)
Financial Crisis (DCRISIS)	Dummy variable takes the value of 1 if an IPO is offered in the period 2008 to 2009 and 0 otherwise.	Taufil-Mohd (2007)

3.6 Hypotheses Development

The hypotheses developed were based on the research questions and objectives outlined in Chapter 1. The established hypotheses were associated with how growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism would affect oversubscription of IPOs. The firm's characteristics, such as market conditions, retail investors, investor sentiment, offer size, listing board, and financial crisis serve as control variables since they had significant impact in previous studies.

3.6.1 Growth Opportunity and Oversubscription of IPOs

The utilisation of proceeds for growth opportunity was expected to attract investor demand for IPOs. This is consistent with Abdul-Rahim and Che-Embi (2013) and Leone *et al*. (2007), who argued that if a firm used allocation from the proceeds for expansion of the business, it sends a positive signal toward growth opportunity, and accordingly attract investors to subscribe to the IPOs.

Previous empirical studies that examined the utilisation of proceeds on R&D also support the argument that growth opportunity provides a positive signal on the firm's value (Chahine *et al*., 2007; Chan, Lakonishok, & Sougiannis, 2001; Connolly & Hirschey, 2005; Xiao, 2011). The study by Chahine *et al*. (2007) showed a positive relationship between investment on R&D and growth opportunity. Their findings implied that if an insufficient amount of IPO proceeds is allocated for growth prospects, such as R&D, it signals that the growth options or investment opportunities of the firm is lower and this would affect the firms' value.

A positive impact was also expected when growth opportunity is viewed in terms of investor response (Chung *et al*., 2005; Rajan & Servaes, 1997). Firms with high growth opportunity projections have greater chances of raising funds from the IPO listing (Rajan & Servaes, 1997). Meanwhile, Chung *et al*. (2005) noted that investors interpret growth opportunity as signalling good quality, and accordingly, they are willing to subscribe and to pay more for the IPO.

Similarly, the findings by Leone *et al*. (2007) also showed that high-value firms can signal quality by investing their IPO proceeds in growth opportunity. Thus, the findings implied that investors would react positively toward IPOs with higher growth opportunity projections. There is a possibility that companies which commit to higher growth opportunity would be expected to send a signal of high quality IPOs and it is expected to have lower risk, thus investors essentially interpret these good prospects of the firm and are willing to pay and subscribe more to the offer. Therefore, it was expected there is a positive relationship between growth opportunity and oversubscription. In line with this, the following hypothesis was investigated for this study:

H1: Growth opportunity has a positive influence on oversubscription of IPOs.

3.6.2 *Bumiputera* Equity Ownership and Oversubscription of IPOs

In Malaysia, one may perceive that *Bumiputera* equity requirement is simply an act to comply to the listing requirement, and thus it may not be an important signal of firms' value. However, Ariff and Shamsher (1999) proved otherwise where they found that regulatory intervention, such as *Bumiputera* equity requirement, might be a plausible cause of the high underpricing level of Malaysian IPOs. This is further supported by

Prasad *et al*. (2006) and How *et al*. (2007) who showed that *Bumiputera* equity ownership is positively significant in influencing underpricing in Malaysia. However, Taufil-Mohd (2007) found an insignificant negative relationship between *Bumiputera* equity ownership and underpricing of Malaysian IPOs.

From the signalling theory point of view, a high *Bumiputera* ownership proportion could enticed investors to participate in obtaining the IPOs. The reason could be due to the belief of issuers that they should offer a larger discount in order to enable *Bumiputera* investors to subscribe to these IPOs. According to How *et al*. (2007), if regulators used the allocation process to redistribute wealth amongst different ethnic groups, a positive relationship between the proportion allocated to *Bumiputera* investors and the first day return would be expected. Based on the results of their study, it was shown that the coefficient for the proportion allocated to retail *Bumiputera* investors would be positive where a higher proportional allocation to retail *Bumiputera* investors is associated with higher underpricing, which is in line with Paudyal *et al*. (1998) and Prasad *et al*. (2006). It was believed that the issuer would underprice their IPOs to attract investors, especially *Bumiputera* investors, to subscribe to the IPOs in order to fulfil the NEP requirement.

However, the number of non-*Bumiputera* investors is quite large. According to Ramayah, Rouibah, Gopi, and Rangel (2009), the non-*Bumiputera* investors, especially of Chinese ethnicity, constitutes about 80 percent of investors in the Malaysian stock market. Therefore, competition among investors in this group for the rest of the shares could lead to higher oversubscription. These arguments suggested a

positive influence of *Bumiputera* equity requirement on oversubscription. In line with this, the following hypothesis was investigated:

H2: *Bumiputera* equity ownership has a positive influence on oversubscription of IPOs.

3.6.3 Revised *Bumiputera* Regulation and Oversubscription of IPOs

On 30 June 2009, the Securities Commission (SC) revised the *Bumiputera* equity requirement policy. The *Bumiputera* equity requirement was reduced from 30 percent to 12.5 percent as a minimum requirement from the enlarged issue and paid up capital. This could provide a negative signal to investors in terms of underpricing, as it could be perceived that there is less allocation to *Bumiputera* investors. Following this regulation, an issuer does not need to lower its IPO price to attract *Bumiputera* investors. Therefore, this study hypothesised that if *Bumiputera* equity requirement is reduced, it would indicate that the offer price of IPOs is higher and investors might be reluctant to subscribe to these shares. Furthermore, an increase of the allocation to non-*Bumiputera* investors would reduce competition among this group of investors in subscribing to these IPOs and could lead to lower oversubscription. These arguments suggested a negative effect of the revised *Bumiputera* regulation on oversubscription of IPOs. In line with this, the following hypothesis was examined:

H3: Revision in the *Bumiputera* equity requirement in June 2009 has a negative impact on oversubscription of the respective IPOs.

3.6.4 *Shariah*-Compliant Status and Oversubscription of IPOs

Shariah equity must comply with the rules of the *Shariah* Advisory Council (SAC) and be free of elements of non-*halal* business activities and interest (*riba*). There are many advantages of *Shariah*-compliant securities, especially in attracting global investors to subscribe to the shares. Therefore, the *Shariah*-compliant status will provide a favourable signal and most likely influence investors' interest on IPOs under *Shariah*-compliant status.

Other studies used signalling theory to explain the positive effects of *Shariah*-compliant securities and underpricing of Malaysian IPOs. Abdul-Rahim and Yong (2010), and Abdul-Rahim and Che-Embi (2013), for instance, explained that investor demand, proxied by oversubscription ratio, plays an important role in the initial returns of *Shariah* compliant equity. However, the study did not examine the influence of *Shariah*-compliant status on oversubscription. Therefore, this study argued that the introduction of *Shariah*-compliant status gives a positive signal to the market. This study predicted that IPOs with *Shariah*-compliant status would be more likely to have higher demand from the market as they could attract both Muslim and non-Muslim investors. Accordingly, this study developed the following hypothesis, which could predict a positive impact of *Shariah*-compliant status on oversubscriptions of IPOs.

H4: *Shariah*-compliant status has a positive influence on oversubscription of IPOs.

3.6.5 Revised *Shariah* Regulation and Oversubscription of IPOs

As mentioned before, the SC, through SAC, revised the *Shariah*-compliant status guidelines effective on 29 November 2013. Under the new *Shariah*-compliant status

guidelines, companies with non-permissible business activities, which were previously assessed under 10 percent and 25 percent benchmarks, could possibly be affected because currently they are assessed under the 5 percent and 20 percent benchmarks. In addition, companies with higher conventional cash and debt could also possibly be affected because previously there was no screening based on total conventional debt and cash invested in conventional accounts. With this new benchmark, it would ensure that the company's income or debt is within a reasonably tolerable level from the *Shariah* perspective. These criteria could provide a positive signal to investors as the new *Shariah*-compliant rules are stricter and more in line with international standards in determining *Shariah*-compliant status. This might attract not only local investors but also foreign investors, especially the Middle Eastern investors, to participate as these shares are free from non-permissible elements. It is expected that there is a positive effect of the revised *Shariah*-compliant regulation on oversubscription of IPOs. In line with this, the following hypothesis was examined:

H5: Revision in the *Shariah*-compliant status guidelines in November 2013 has a positive impact on oversubscription of the respective IPOs.

3.6.6 Cash and Oversubscription of IPOs

Having a large cash balance would improve firm's cash flow and liquidity. Al-Najjar (2013), Al-Najjar and Belghitar (2011), Bates *et al*. (2009), Booth *et al*. (2001), Mikkelson and Partch (2003), Miller and Orr (1966), and Myers (1984) were of the view that since firms hold cash for the purpose of future investment, high cash holding sends positive signals on growth or firm's value, which in turn could attract investors to subscribe. This is in line with Al-Najjar (2013) and Al-Najjar and Belghitar (2011)

who found that higher cash holdings provide a better opportunity cost, if it is used to generate profitable investments that would increase the firm's value. In cases where high cash is seen as signalling the firm's performance and profitability (Booth *et al*., 2001; Mikkelson & Partch, 2003), it is likely to increase demand for the IPOs, which subsequently would result in oversubscription.

From the R&D perspective, studies by Bates *et al*. (2009), and Mikkelson and Partch (2003) also showed a positive impact. The findings by Mikkelson and Partch (2003) indicated that high cash holdings are accompanied by R&D expenditures, and are positively associated with future growth. Bates *et al*. (2009) pointed out that the increase in cash holdings of the U.S. industrial firms contributed to R&D expansion that could enhance firms' future value.

A positive impact was also expected when growth opportunity is viewed from the debt viewpoint. Firms with high cash holdings definitely would reduce their debt ratios (Miller & Orr, 1966; Myers, 1984). This is because with higher cash ratios, firms are likely to borrow less and usually use internal cash flow to fund their operations. Besides, with low debt ratios, firms would incur lower costs for servicing their debts (interest). Therefore, firms could optimise their cash for generating income. This could increase investors' interest in subscribing to the offered IPOs.

In contrast, Harford (1999) found that firms with higher cash would likely be involved in acquisitions. Acquisition by a firm with higher cash would reduce equity value due to the subsequent poor operating performance of the combined firm. It was suggested that the management may have self-interest that motivates them to be inefficient in

handling the presence of free cash flow. Managers would invest in projects that are not maximising the shareholders' value when the firm has a lot of cash in hand. Based on the free cash flow hypothesis by Jensen (1986), when there is excess cash flow, managers would tend to invest in negative net present value (NPV) projects. This would have a negative effect on the firm's value.

This study predicted that the higher the cash ratio, the higher the source of funds to generate income, and accordingly sends a favourable signal that would most likely result in increasing oversubscription.

H6: Cash ratio has a positive impact on oversubscription of IPOs.

3.6.7 Debt and Oversubscription of IPOs

Debt financing is frequently accompanied by strict conditions or pledges, notwithstanding the need to pay principal and interest at specific dates. Inability to meet debt repayment as scheduled exposes the firm to the possibility of bankruptcy. Therefore, investors would be careful before subscribing to IPOs issued by companies with high debt ratios. Campello (2006), Fama and French (2002), Helwege and Liang (1996), Kim and Sorensen (1986), and Myers (2001) concurred that investors would be reluctant to invest in firms having large debts since the levered firm would normally face slower growth. Therefore, the higher debt would reduce the demand for these IPOs, and results in lower oversubscription.

Firms with high debts generally would have lower cash ratio (Al-Najjar, 2013; Al-Najjar & Belghitar, 2011; Myers, 1984). Normally, such firms use debt to fund their operations. Having a high debt ratio would also mean that firms need to bear a higher

"cost of borrowing", which could limit their investments and affect future growth (Fama & French, 2002; Kim & Sorensen, 1986). The levered firm would usually use cash raised from IPOs to pay off debt instead of investment. Hence this would send an unfavourable signal to investors in subscribing to these IPOs.

Meanwhile, Jensen (1986) argued that debt mitigates agency conflicts and accordingly protects shareholder's interest in maximising wealth. This is further supported by Fama and French (2002) who argued that debt could curb the agency problem by forcing managers to pay out more of the firm's excess cash for servicing the debt, instead of misusing it for their self-interest. Through debt, managers must manage their companies more efficiently because debtholders would closely monitor the company. In other words, proper management of firms' debt would create confidence that investors are somehow protected by the debtholder in monitoring the misuse of the firms' cash flow. In this situation, it would help shareholders to increase the value of equity.

This study predicted that the higher the debt ratio, the higher the cost of borrowing. This would limit investment and accordingly this would send unfavourable signals to the market and lead to a decrease in oversubscription.

H7: Debt ratio has a negative impact on oversubscription of IPOs.

3.6.8 Pricing Mechanism and Oversubscription of IPOs

As mentioned earlier, the issuers and underwriters have a greater degree of freedom in setting the offer price of IPOs in fixed price mechanism. In other words, the offer price

of the IPOs is fixed by the issuer and underwriter without knowing the demand from investors. According to Benveniste and Busaba (1997) and Low and Yong (2011), lowering IPO offer price would provide a positive signal that might increasing investor demand because the IPO price is established without soliciting investor information. This would in turn reduce the probability of issue failure. In contrast, under the book-building mechanism, firms are allowed to extract information on shares demand from investors before setting the final price and issue size. Furthermore, the information obtained from book-building process provides issuer and underwriter the option or flexibility to adjust the price and issue size of IPO (Benveniste & Busaba, 1997; Low & Yong, 2011). As a result, the level of oversubscription and underpricing is lower for book-building mechanism as compared to fixed-price mechanism (Agarwal *et al.*, 2008; Low & Yong, 2011). Thus, it is expected that there is a negative effect of the pricing mechanism on oversubscription of IPOs. In line with this, the following hypothesis was examined:

H8: Pricing mechanism has a negative impact on oversubscription of IPOs.

In summary, this study provides eight hypotheses which are stated above to answer the objectives of this study as outlined in Chapter One. Analysis of results in Chapter Four gives a detailed explanation in answering these hypotheses.

3.7 Model Specification

This study employed a cross-sectional multiple regression analysis to test these hypotheses. To summarise, the main focus of this study was to examine the influence of growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation,

Shariah-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism on oversubscription of IPOs. The regression model enabled this study to test the corresponding hypotheses which were developed in Section 3.5. Specifically, the hypotheses would be addressed based on *t*-statistics and *p*-values obtained from the cross-sectional multiple regression analyses. The regression model, which included six control variables, was utilised for the whole sample to answer all objectives. The equation is represented as follows:

$$OSR_i = \alpha + \beta_1 GOP_i + \beta_2 BEQ_i + + \beta_3 BUMI\Delta_i + \beta_4 DSHARIAH_i + \beta_5 SHARIAH\Delta_i$$
$$+ \beta_6 CASH_i + \beta_7 DEBT_i + \beta_8 DMECHANISM_i + \sum_{j=1}^{6} \lambda_j CV_{j.i} + \varepsilon_i \qquad (9)$$

Where:

α	=	the regression intercept,
β	=	the regression coefficients of the respective predictor variables,
OSR_i	=	oversubscription ratio of IPOs,
GOP_i	=	growth opportunity,
BEQ_i	=	*Bumiputera* equity ownership,
$BUMI\Delta_i$	=	dummy variable takes a value of 1 following new *Bumiputera* equity ruling and 0 otherwise,
$DSHARIAH_i$	=	dummy variable takes a value of 1 for *Shariah*-compliant IPOs and 0 otherwise,
$SHARIAH\Delta_i$	=	dummy variable takes a value of 1 following new *Shariah* guidelines and 0 otherwise,
$CASH_i$	=	cash ratio,
$DEBT_i$	=	debt ratio,
$DMECHANISM_i$	=	dummy variable takes a value of 1 for book-building mechanism and 0 if fixed-price mechanism,
CV_i	=	control variables listed as follows:
$MKTCON_i$	=	pre-IPO listing market condition,

$RETAIL_i$ = retail investor involvement,

$DRETURN_i$ = investor sentiment based on the performance of IPOs listed in a particular listing quarter,

$SIZE_i$ = natural log of offer size,

$DBOARD_i$ = Dummy variable takes a value of 1 if an IPO is listed on the Main Market and 0 if listed on the ACE Market,

$DCRISIS_i$ = Dummy variable takes a value of 1 if an IPO is offered in the period 2008 to 2009 and 0 otherwise, and

ε_i = error term of the regression.

3.8 Assumptions of Ordinary Least Square

There were several assumptions with the use of ordinary least squares (OLS) in this study. These assumptions would need to be verified before the hypotheses could be tested (Gujarati, 2009). They included data normality, absence of collinearity, absence of heteroscedasticity, absence of autocorrelation, and removal of outliers. These were to ensure that a robust analysis could be performed. Furthermore, the assumptions need to be tested to ensure the best linear unbiased estimator (BLUE) in a regression model is presented.

3.8.1 Data Normality

OLS requires that residuals should be distributed normally. The normality test is useful to check whether the sample data has a kurtosis and skewedness that match normal distribution (Gujarati, 2009). In this study, the Jarque-Bera statistic was used to verify the normality of residuals. If these residuals are normally distributed, the Jarque-Bera statistic would not be significant while the histogram would be bell-shaped.

3.8.2 Multicollinearity

In a multiple regression model, multicollinearity is the linear relationship between two or more determining variables (Gujarati & Porter, 2010). In other words, multicollinearity is where there is a strong correlation among the independent variables. According to Maddala and Lahiri (2009), a strong correlation between more than two independent variables disrupts the individual impact of each independent variable on the explained variable. Inevitably, it leaves the outcome of regression to be meaningless as some of the independent variables overlap each other. Variance inflation factor (VIF) was employed to diagnose this multicollinearity issue. VIF demonstrates the strength of relationships among independent variables. Following the VIF rule of thumb, when the value is equal to "1", it shows non-existence of relationships among independent variables or the absence of multicollinearity. The multicollinearity problem is viewed as severe if the VIF value is greater than 10. One method of treating this problem is by dropping one of the independent variables that is strongly correlated with the other variables (Gujarati & Porter, 2010).

3.8.3 Heteroskedasticity

Heteroskedasticity refers to circumstances in which the conditional variance of *Y* is not constant across the values of *Xs* in the regression analysis (Wooldridge, 2015). An important assumption in a regression analysis is that the disturbances (ε_i), of the population's regression function is homoscedastic, and each one of them have the same variance. This study employed the Breusch-Pagan-Godfrey test to detect the presence of heteroskedasticity.

3.8.4 Autocorrelation

Autocorrelation may exist when observations on the dependent variable are not independently drawn in a regression analysis (Wooldridge, 2015). This study employed the Durbin Watson (DW) test to detect autocorrelation, whereby if the DW statistics is around "2", then there is no serial correlation. A positive serial correlation exhibits a DW statistics of below "2", while being closer to "0" is considered as having a serious issue. In the event that the DW is "4", then there is a perfect negative correlation. To affirm the autocorrelation issue, a DW significance table was utilised. The null hypothesis would be rejected if the test statistic is higher (lower) than tabulated values for negative (positive) autocorrelation. In the event that the result of the DW denotes autocorrelation, the issue could be resolved through correcting the standard errors by using Newey-West covariance estimator (Gujarati, 2009).

3.8.5 Outliers

Prior to carrying out regression analysis, this study verified the data to ensure that there are no outliers. Outliers signal an unusual pattern within a data set and should be normalised before conducting any statistical tests (Meyers, Gamst, & Guarino, 2006). These outliers can be identified through the value of studentized residuals (Kleinbaum, Kupper, Nizam, & Rosenberg, 2013; Quinn & Keough, 2002; Ruppert, 2004). To get these studentized residuals, the residuals are divided by their estimated standard error (t-statistic). According to Ruppert (2004), values that are more than "3" would be considered as potential outliers. This study removed the firms that have studentized residuals of greater than "3".

3.9 Chapter Summary

In summary, this chapter discussed data source, sample description, research framework, hypotheses development, and econometric analysis in the attempt to achieve the research objectives, which is turn would answer the research questions. This study examined the predictors of oversubscription, using a sample of 410 IPOs issued by Malaysian companies on the Main Market and ACE Market of Bursa Malaysia. It covered the period from January 2000 to December 2015. This study treated growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism as the main independent variables. It also considered six control variables, namely market condition, retail investor involvement, investor sentiment, offer size, listing board, and financial crisis. Overall, there were 13 variables employed to predict oversubscription. Diagnostic tests on the residuals were conducted to investigate the appropriateness of using OLS. The diagnostic tests carried out included the Jarque-Bera, Breusch-Pagan-Godfrey and DW tests. Once the underlying assumptions of the regression models were met, the hypotheses were tested by using *t*-statistics in the estimated regression models.

CHAPTER FOUR

FINDINGS

4.1 Introduction

This chapter discusses the results of this study, which begins with descriptive statistics and correlations of the dependent variable, main variables, and control variables. Then, the comparison between high-demand IPOs and low-demand IPOs is discussed. This is followed by verification of several assumptions of OLS such as data normality, absence of multicollinearity, absence of autocorrelation, absence of heteroscedasticity, linearity, and outlier issues before the hypotheses are tested (Gujarati, 2009). Finally, the outcomes of the multivariate regression analysis to answer the objectives of this study were examined.

4.2 Results of Descriptive Statistics

The discussions on descriptive statistics and correlations were based on a final sample of 410 IPOs listed on Bursa Malaysia from January 2000 to December 2015, as shown in Table 4.1. The final established sample of IPOs for further analysis was screened from the initial sample of 540 IPOs, which excluded companies having extreme outliers and had undergone cleaning processes as explained in Section 3.7 of Chapter Three.

Table 4.1
Descriptive statistics and correlations between independent variables and oversubscription

Variables	Mean	Median	Std. Dev.	Minimum	Maximum	Skewness	Kurtosis	Jarque-Bera	Correlation
OSR (times)	27.52	16.42	35.14	-0.89	229.20	2.89	13.89	2,596.97	1.00
GOP (%)	39.60	43.67	27.88	0.00	94.96	-0.10	1.80	25.27	0.16***
BEQ (%)	5.79	4.46	6.38	0.00	30.00	1.28	4.20	136.55	-0.19***
BUMI Δ	0.20	0.00	0.40	0.00	1.00	1.46	3.14	146.47	-0.13***
DSHARIAH	0.90	1.00	0.30	0.00	1.00	-2.62	7.88	876.03	0.09*
SHARIAH Δ	0.07	0.00	0.26	0.00	1.00	3.28	11.75	2,040.92	-0.06
CASH (%)	13.87	10.85	12.80	0.02	88.47	1.85	7.81	629.82	-0.04
DEBT (%)	41.68	41.39	18.83	1.25	96.16	0.19	2.70	4.09	-0.21***
DMECHANISM	0.07	0.00	0.25	0.00	1.00	3.50	13.26	2,634.28	-0.14***
MKT CON	0.01	0.01	0.03	-0.08	0.11	0.09	3.71	9.11	0.13***
RETAIL (%)	22.07	16.78	18.68	0.00	100.00	1.70	5.60	314.44	-0.17***
INSTITUTIONAL (%)	47.34	56.10	31.40	0.00	96.69	-0.35	1.65	38.91	0.20***
DRETURN	0.41	0.00	0.49	0.00	1.00	0.37	1.13	68.64	0.15***
PROCEED (RM)	81,255,614.00	18,285,000.00	354,000,000.00	0.00	4,460,000,000.00	8.57	88.08	128,044.30	0.11**
LNSIZE	17.18	16.90	1.24	14.69	23.25	1.78	7.42	550.51	-0.29***
DBOARD	0.69	1.00	0.46	0.00	1.00	-0.80	1.64	75.27	-0.37***
DCRISIS	0.06	0.00	0.24	0.00	1.00	3.58	13.84	2,883.45	-0.12**

Notes: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Oversubscription ratio (OSR) is the number of times the IPOs are oversubscribed. (GOP) is the percentage of proceeds to growth. *Bumiputera* equity ownership (BEQ) is the total number of shares allocated to *Bumiputera* public investors. Revised *Bumiputera* equity requirement (BUMI Δ) is a dummy variable take value of 1 following new *Bumiputera* equity ruling from June 2009 and 0 otherwise. DSHARIAH is dummy that takes a value of 1 for *Shariah*-compliant IPOs and 0 otherwise. Revised *Shariah*-compliant status (SHARIAH Δ) is a dummy variable take value of 1 following new *Shariah* guidelines introduced in November 2013 and 0 otherwise. Cash to asset (CASH) is the percentage of total cash to total assets. Debt to asset (DEBT) is the percentage of total liabilities to total assets. DMECHANISME refers to the IPO pricing mechanism that takes a value of 1 if book-building mechanism is used in pricing the IPOs and 0 if fixed-priced mechanism is used. Market condition (MKTCON) is the weighted average returns of EMAS Index, three months prior to listing. Retail offering (RETAIL) is the allocation of shares to public investors. Institutional offering (INSTITUTIONAL) is the allocation of shares to institutional investors. DRETURN is the dummy that takes a value of 1 if IPO is listed in a quarter in which equally weighted average initial returns of the quarter is above the median and 0 otherwise. PROCEED is a total gross proceed received from the IPO public issue. LN (SIZE) is the natural logarithm of the total number of shares issued times the offer price. DBOARD refers to the listing board that takes a value of 1 if an IPO is listed in the Main Market and 0 if listed in the ACE Market. DCRISIS refers to the period of the global financial crisis that takes a value of 1 if an IPO is offered in the period 2008 to 2009 and 0 otherwise.

4.2.1 Descriptive Statistics of Dependent Variable

On average, the oversubscription ratio was 27.52 times as indicated in Table 4.1. This ratio is lower than the average of 33.59 times reported by Low and Yong (2011) for Malaysian IPOs for the period from 2000 to 2007, an average of 41.14 times as stated by Taufil-Mohd (2007) for the years from 1990 to 2002, and an average of 43.71 times as documented by Yong and Isa (2003) during the period from 1990 to 1998. However, this value is slightly higher than the 23 times average oversubscription ratio for the period 1984 to 1995 in Paudyal *et al*. (1998), but comparable with Jelic *et al*. (2001) who recorded an average of 27.67 times for the period from 1980 to 1995.

The comparison of the mean of this study with those reported in the developed markets also led to a similar conclusion. The mean in this study was slightly higher compared to 18.35 times in Álvarez and González (2005), 18.77 times in Brennan and Franks (1997), 9.10 times in Cornelli and Goldreich (2003), 2.26 times in Degeorge *et al*. (2010), 5.10 times in Kandel *et al*. (1999), and 15.30 times in Maeseneire and Manigart (2002). However, the mean of this study was much lower than those reported by Gounopoulos (2006) and Vandemaele (2003), who reported 91.55 times and 96.57 times respectively.

An examination of each IPO indicated that the lowest or minimum oversubscription was -0.89 times, as reported for Edaran Digital Systems Berhad (2001 listing). This reflects an undersubscription of 89 percent or a subscription of only 11 percent of the overall number of shares issued. Under its listing exercise, only 660,000 shares application were received out of 6.0 million shares offered to the public. Overall, out of the 410 IPOs that were considered in this study, six IPOs were undersubscribed.

Meanwhile, the highest or maximum oversubscription was 229.20 times, as reported for Plastrade Technology Berhad (2004 listing). Under its listing exercise, the public portion of 1,563,000 shares attracted 359,802,600 share applications from the public. The dramatic difference between minimum and maximum oversubscription ratios showed that the demand varies for each IPO issued in Malaysia. This scenario has allowed and provided an avenue for this study to further examine several factors that influence oversubscription.

The yearly trends of IPO oversubscriptions were also analysed. Figure 4.1 shows the mean value of IPO oversubscription ratios over the period from 2000 to 2015.

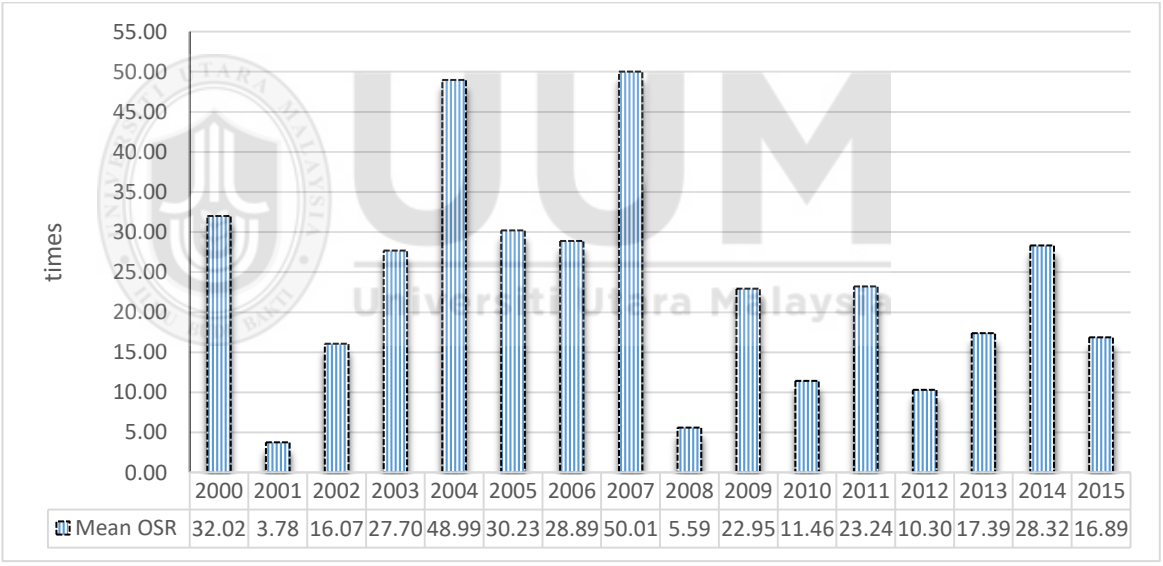

Figure 4.1
Mean oversubscription ratios of IPOs from 2000 to 2015.
Source: Bursa Malaysia

An observations of 410 IPOs listed in Bursa Malaysia during the period from 2000 to 2015 showed that the lowest oversubscriptions of 3.78 times and 5.59 times occurred in 2001 and 2008, respectively. The lowest oversubscription in 2001 was likely to be attributed to the consequences of September 11 and the ensuing uncertain direction of the global economy, which is consistent with the findings of Abdul-Rahim and Yong

(2010). Meanwhile, the global financial crisis (subprime) in 2008 impacted the Malaysian economy and reduced the levels of oversubscription. However, the years 2004 and 2007 recorded the highest oversubscriptions of 48.99 times and 50.01 times, respectively, due to prevailing strong economic fundamentals.

4.2.2 Descriptive Statistics of Main Independent Variables

This section discusses the characteristics of independent variables based on the overall mean for the period from January 2000 to December 2015. The correlation results between variables and oversubscription are shown in Table 4.3, and to avoid redundancy, the yearly mean values are also stated.

4.2.2.1 Growth Opportunity (GOP)

The growth opportunity (GOP), which is measured as the percentage of proceeds utilised for investment purposes over total proceeds, was on average 39.60 percent. This indicates that the proceeds are intended to be used for investment, which reflects that a company is expanding and increasing its market share. The highest GOP was 94.96 percent, reported for Malaysian Bulk Carriers Berhad, which was listed in 2003. The lowest GOPs (zero percentage) registered were for 86 companies. Most of these companies use their proceeds for debt repayment and working capital.

Meanwhile, Figure 4.2 shows the yearly trend of mean values of GOPs and IPO oversubscriptions over the period from 2000 to 2015. From this illustration, it was evident that the lowest GOP recorded was 25.90 percent in 2002, when most IPOs were issued under offer for sale. This indicated that the proceeds from sale of shares did not go to the company, but to the existing shareholders or offerors. Meanwhile the

highest GOP recorded was 53.68 percent in 2014. The higher GOP indicated that most IPO proceeds were utilised for investments such as capital expenditure, R&D, and purchasing assets. Thus, this study was of the view that such information is valuable in explaining oversubscription ratios.

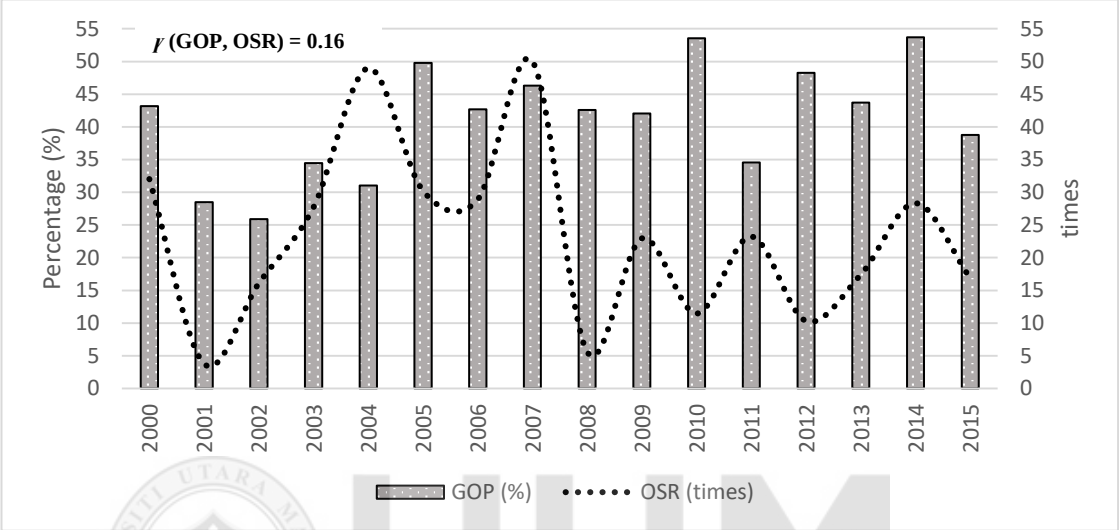

Figure 4.2
Mean growth opportunity and oversubscription ratios of IPOs for the period 2000 to 2015.
Sources: IPO Prospectus and Bursa Malaysia

From the comparative trends between GOP and OSR as shown in Figure 4.2, there was no clear trend of the relationship between GOP and OSR. For example, in 2010 and 2012, GOP was high, but oversubscription was rather low. Nonetheless, the correlation between the two variables showed a positive relationship of 0.16, indicating that IPO firms with higher growth opportunities tended to generate higher oversubscription ratios. In other words, higher GOP can be considered as a positive signal by investors since a substantial portion of the proceeds are used for investments. As such, the IPO is more likely to be favoured as it exhibits better growth prospects.

An earlier study by Abdul-Rahim and Che-Embi (2013) found that the average GOP was 57 percent, based on 384 IPO observations during the period from 1999 to 2008,

which was slightly higher than that of this study. This was because different measurements or proxies of GOP were adopted in this study and the study period was different. Abdul-Rahim and Che-Embi (2013) measured growth by calculating the percentage of IPO proceeds allocated for growth activities such as working capital, capital expenditure, and R&D expenditure on IPOs initial returns. However, this current study excluded working capital, as its function is to support day-to-day activities and not for expansion purposes (Eljelly, 2004).

4.2.2.2 *Bumiputera* Equity Ownership (BEQ)

As reported in Table 4.1, the mean of Bumiputera equity ownership (BEQ) for 410 IPOs during the study period from 2000 to 2015 was 5.79 percent. The highest Bumiputera equity ownership reported was for GLOMAC Berhad at 30.0 percent, which was listed in June 2000. As illustrated in Figure 4.3, the highest Bumiputera equity ownership was 17.1 percent recorded in 2000, while the lowest was 1.81 percent registered in 2005, as more issuers were listing their IPOs in the MESDAQ market at that time.

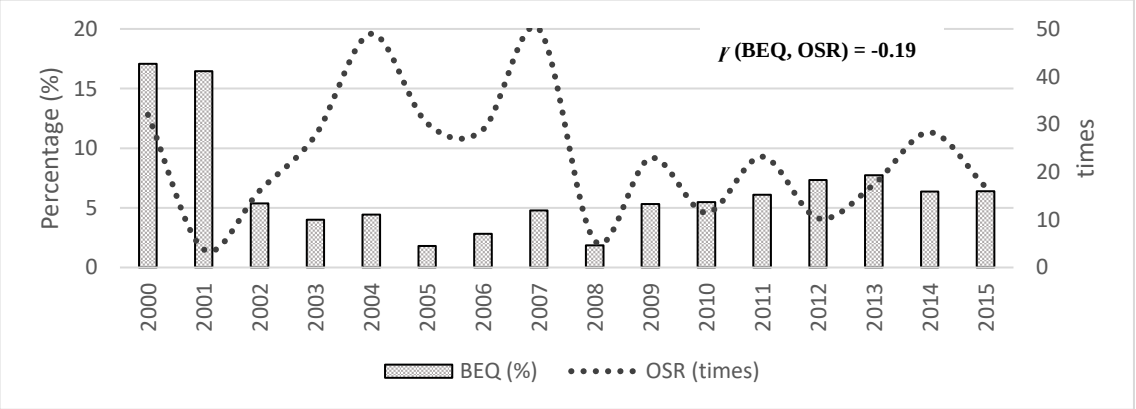

Figure 4.3
Mean Bumiputera equity ownership and oversubscription ratios of IPOs for the period 2000 to 2015.
Sources: IPO Prospectus and Bursa Malaysia.

The findings of this study were compared to past studies by Abdullah and Taufil-Mohd (2004), How *et al*. (2007), Jelic *et al*. (2001), Paudyal *et al*. (1998) and Taufil-Mohd (2007), all of who noted that the average allocation to Bumiputera investors was 52.88, 40, 44.45, 45.8, and 40.97 percent, respectively. These percentages were higher than that of this study, which was less than 30 percent because this study used total number of shares allocated to the Bumiputera public investors, while the previous studies used a different measurement, which was the total number of shares held by Bumiputera after the IPOs were issued.

4.2.2.3 Revised *Bumiputera* Regulatory Requirement (BUMI Δ)

As mentioned earlier, the Government through the Securities Commission (SC) liberalised the *Bumiputera* equity requirement from 30 percent to 12.5 percent from the number of enlarged issues, effective June 2009, while the 25 percent public shareholder requirement remained. Table 4.1 indicates that the revised *Bumiputera* regulatory requirement (BUMI Δ) has an average value of 0.20, which means that 20 percent of the total IPOs issued during this period were under the new *Bumiputera* equity requirement. Of the 410 IPO observations in this study, 84 were IPOs listed after the regulation took effect.

The yearly averages of *Bumiputera* equity ownership, as shown in Figure 4.4, revealed an interesting trend. The fluctuation of yearly averages of oversubscription decreased after the revision in 2009. The correlation between BUMI Δ and OSR was significant at -0.13. This was an indication that the revised *Bumiputera* regulatory requirement does matter in explaining the oversubscription of Malaysian IPOs in a negative manner. In other words, IPOs listed after the revised *Bumiputera* regulatory

requirement (BUMI Δ) witnessed reduced oversubscription rates, which resulted in a decline in the subscription rates.

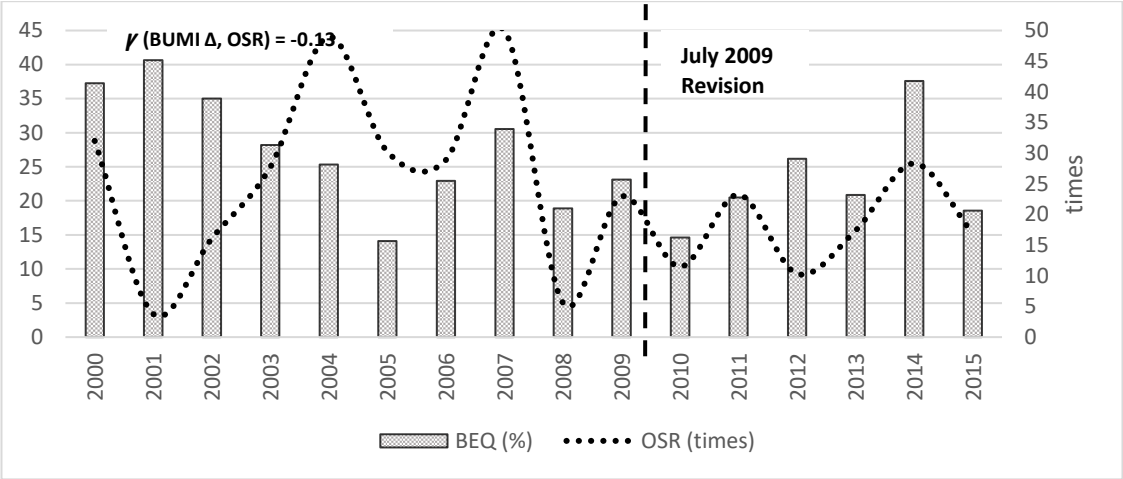

Figure 4.4
Mean Bumiputera equity ownership and oversubscriptions of IPOs for the period 2000 to 2015
Sources: IPO Prospectus and Bursa Malaysia.

4.2.2.4 *Shariah*-Compliant Status (DSHARIAH)

On average, 90 percent of Malaysian IPOs had *Shariah*-compliant status during this study period, as indicated in Table 4.1. Figure 4.5 illustrates that the *Shariah*-compliant status is highest at 100 percent in 2015, while lowest was at 55.6 percent in 2012.

The number of *Shariah*-compliant IPOs was higher than *non-Shariah* IPOs for the said period. The relationship between DSHARIAH and OSR showed that *Shariah*-compliant IPOs were positively related to oversubscription. The positive correlation (0.09) showed that IPO firms with *Shariah*-compliant status were associated with high oversubscription ratios. In other words, having gone through the strict monitoring process and stringent regulations to obtain approval from SAC, *Shariah*-compliant IPOs were considered free from non-permissible elements, as compared to that of the conventional IPOs. Therefore, these IPOs were more likely to have higher demand

from the market as they could attract both Muslim and non-Muslim investors, which in turn could increase subscription rates.

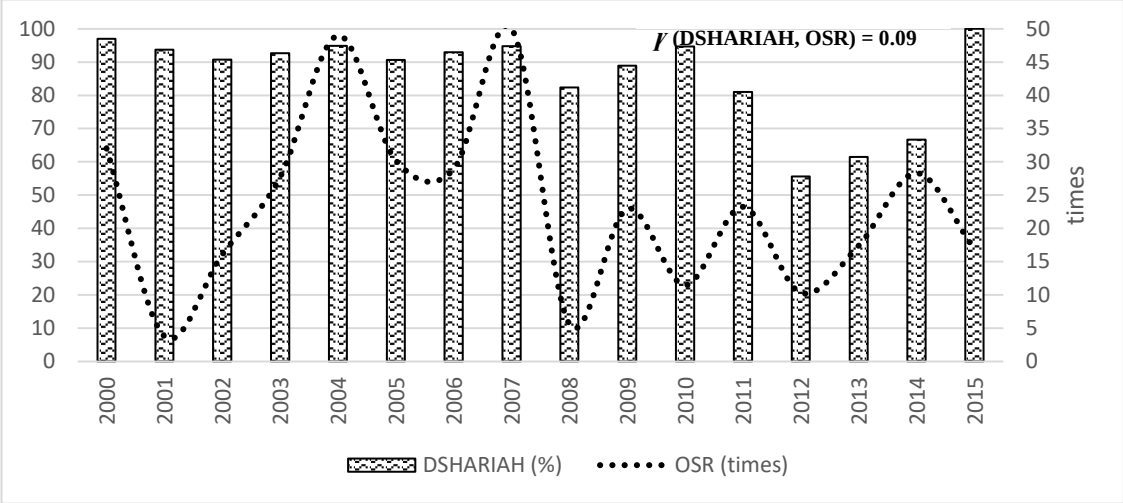

Figure 4.5
Mean Shariah-compliant status and oversubscriptions of IPOs during the period 2000 to 2015.
Sources: IPO Prospectus and Bursa Malaysia

Abdul-Rahim and Che-Embi (2013) in their study observed an average of 86 percent of *Shariah*-compliant IPOs based on 384 IPO observations during the period from 1999 to 2008, which was slightly lower than that in this study. This was because the sample used by Abdul-Rahim and Che-Embi (2013) only covered a shorter period and before the implementation on the revision of *Shariah*-compliant guidelines. Meanwhile, this study extended into the revised *Shariah*-compliant period that was effective from November 2013.

4.2.2.5 Revised *Shariah*-Compliant Regulatory Requirement (SHARIAH Δ)

The Securities Commission (SC) through the *Shariah* Advisory Council (SAC) revised the *Shariah*-compliant status guidelines, effective 29 November 2013. Table 4.1 indicates that the revised *Shariah*-Compliant Regulatory Requirement (SHARIAH Δ)

had an average value of 0.07 or 7 percent of the total IPOs issued during this period, which complied with the new *Shariah* guidelines.

Figure 4.6 shows that the yearly averages of *Shariah*-compliant status IPOs after the regulation took effect reflected an increasing trend. However, the fluctuation of the yearly averages of oversubscription was similar to the period before the revision in 2013. The correlation between SHARIAH Δ and OSR was -0.02, but insignificant. This is an indication that the revised *Shariah*-compliant regulatory requirement is not associated with oversubscription of Malaysian IPOs.

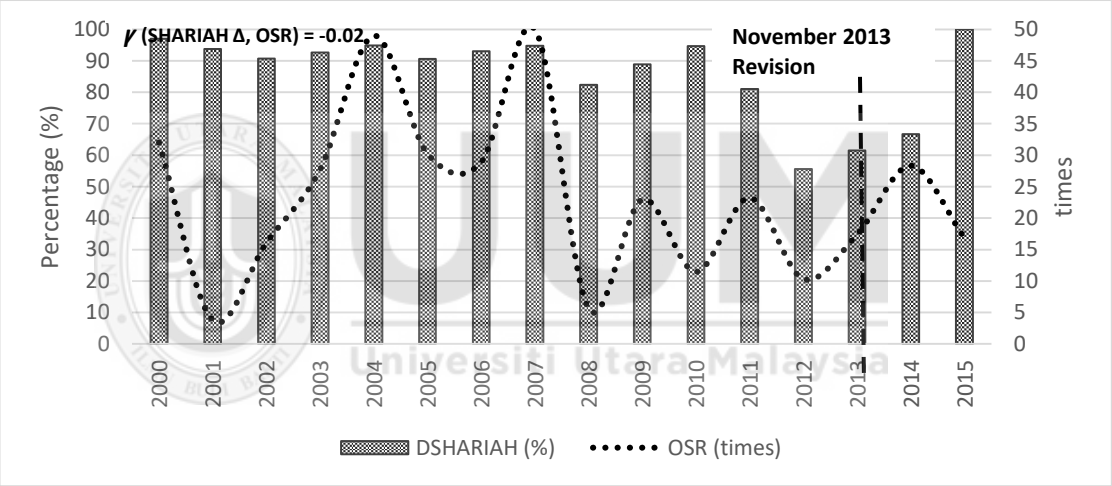

Figure 4.6
Mean Shariah-compliant status and oversubscriptions of IPOs for the period 2000 to 2015.
Sources: IPO Prospectus and Bursa Malaysia

4.2.2.6 Cash Ratio (CASH)

Cash ratio (CASH), as reported in Table 4.1, was on average 13.87 percent. The highest CASH of 88.47 percent, belonged to Sona Petroleum Berhad that was listed in July 2013, while the lowest was 0.02 percent by CYL Corporation Berhad, which was listed in April 2003. The mean cash ratio found in this study was comparable to those found in other markets previously, such as in the United Kingdom and the United

States. Ozkan and Ozkan (2004) found an average of 9.9 percent cash holdings in the United Kingdom based on 839 observations during the period 1995-1998. Meanwhile, Opler *et al*. (1999) reported an average of 17 percent cash holdings in the United States from 87,117 observations in the period 1971 to 1994. Figure 4.7 reveals the highest average annual cash ratio to be 18.87 percent recorded in 2015, while the lowest was 9.72 percent in 2001. Overall, most of the cash ratios for IPOs in Malaysia was below 20 percent during the said period. The comparative trend between CASH and OSR showed that CASH does not have any relationship with OSR as the correlation was not significant.

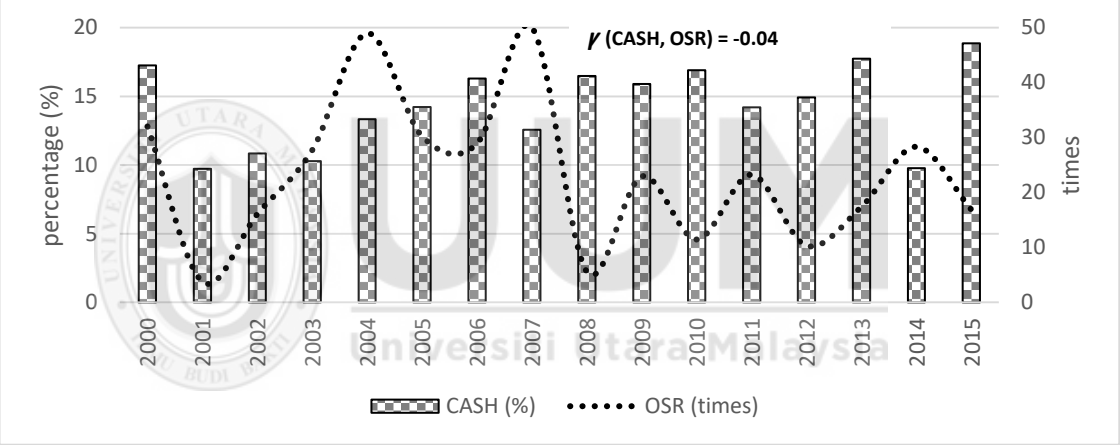

Figure 4.7
Mean cash ratio and oversubscription ratios of IPOs for the period 2000 to 2015.
Sources: IPO Prospectus and Bursa Malaysia

4.2.2.7 Debt Ratio (DEBT)

Debt ratio (DEBT), as reported in Table 4.1, was on average 41.68 percent. The highest DEBT registered was 96.16 percent for Astro Malaysia Holdings Berhad, which was listed in October 2012. The lowest DEBT was 1.25 percent incurred by Nova MSC Berhad, which was listed in August 2003. The mean debt ratio found in this study was higher than those found in other markets, such as in the United Kingdom and the United States. Ozkan and Ozkan (2004) found an average of 16.2 percent debt in the

United Kingdom based on 839 observations during the period 1995-1998. Meanwhile, Opler *et al*. (1999) reported an average of 26.1 percent debt in the United States from 87,117 observations in the period 1971 to 1994.

Figure 4.8 illustrates the highest debt ratio to be 57.90 percent recorded in 2012 due to mega IPO listings of well established companies that carry higher debt ratios such as Astro, Felda Global Venture, IHH Healthcare, and Gas Malaysia. The lowest debt ratio was 37.37 percent recorded in 2003. Overall, the debt ratio for IPOs in Malaysia was below 60 percent for the said period.

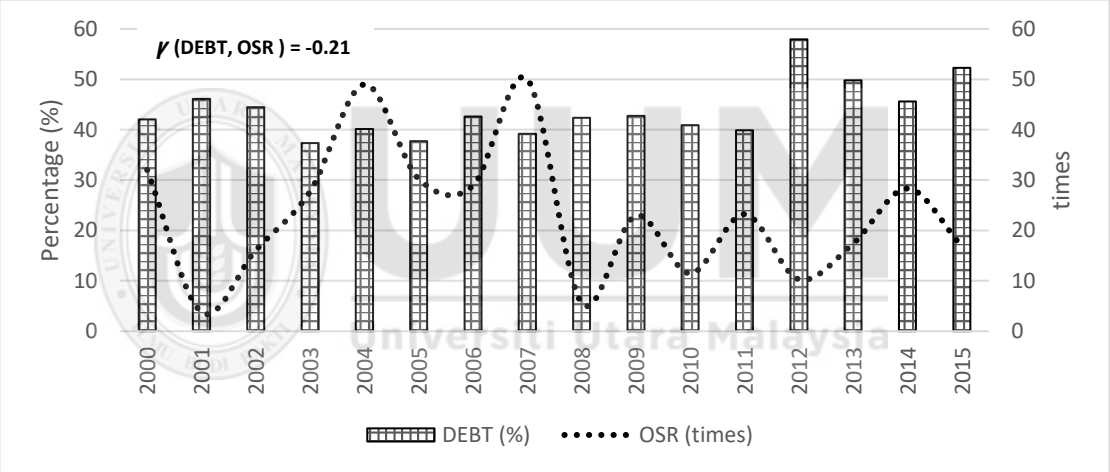

Figure 4.8
Mean debt ratio and oversubscription ratios of IPOs for the period 2000 to 2015.
Sources: IPO Prospectus and Bursa Malaysia

There is a significant negative relationship between DEBT and OSR. The negative correlation (-0.21) indicated that IPO firms with a higher DEBT have lower oversubscription rates. In other words, firms with high DEBT would incur high cost of borrowings. This would limit investments and accordingly send unfavourable signals to the market and lead to a decrease in subscription rates.

4.2.2.8 Pricing Mechanism (DMECHANISM)

As mentioned earlier, there are some IPOs issued in Malaysia have used mixed mechanism in pricing their IPOs. Table 4.1 indicates that the pricing mechanism (DMECHANISM) has an average value of 0.07, which means that seven percent of the total IPOs issued during this period were issued under mixed mechanism. Out of the 410 IPO observations in this study, 30 IPO were issued under mixed mechanism.

Figure 4.9 reveals that the mixed mechanism started in 2002 with one IPO issued. The highest mixed mechanism IPOs was recorded in 2004 where there were six IPOs issued. The correlation between DMECHANISM and OSR was insignificant at -0.14 indicating that pricing mechanism did not have any relationship with OSR.

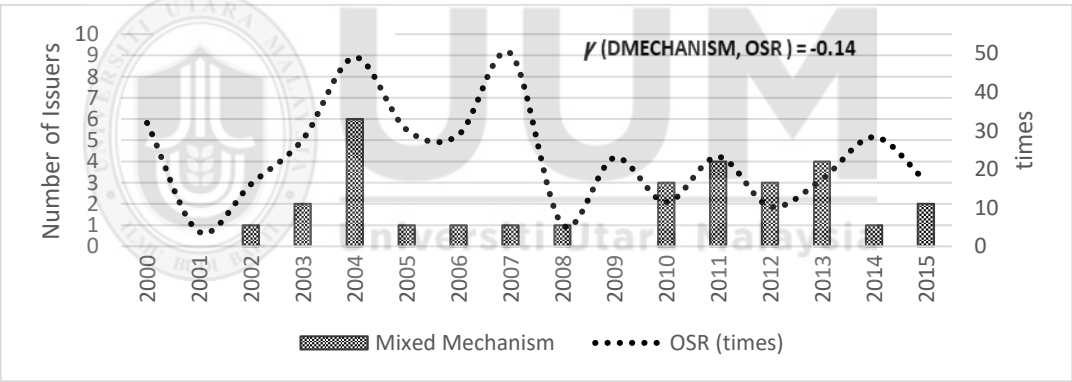

Figure 4.9
Mean pricing mechanism and oversubscription ratios of IPOs for the period 2000 to 2015.
Sources: IPO Prospectus and Bursa Malaysia

In summary, this section has provided the minimum, maximum, median, mean and standard deviation of eight independent variables together with the dependent variable from the period of January 2000 to December 2015.

4.2.3 Descriptive Statistics of Control Variables

This section discusses the characteristics of control variables based on the overall mean for the period January 2000 to December 2015.

4.2.3.1 Market Condition (MKTCON)

In this study, market condition was represented by three-month weighted market returns prior to listing (MKTCON). As shown in Table 4.1, the MKTCON reported a mean of 0.01 or 1 percent returns and it ranges from -8 percent to 11 percent. The positive average returns implied that IPO companies would go for listing when the stock market is generally performing well in the period three months before the actual listing. The correlation between oversubscription and market condition was 0.13.

Based on the trends in Figure 4.10, the weighted average three-month market returns were associated with oversubscription. In general, observations from this study revealed that when the market was doing good, oversubscription of IPOs was high and the reverse was true when the market was doing badly. This is consistent to the study in China where Ma and Faff (2007) reported that the average market returns for the period from 1994 to 2003 was much higher at 3.64 percent. Meanwhile, in France, Derrien and Womack (2003) reported that the average three-month market returns prior to listing to be 1.55 percent for the period from 1992 to 1998.

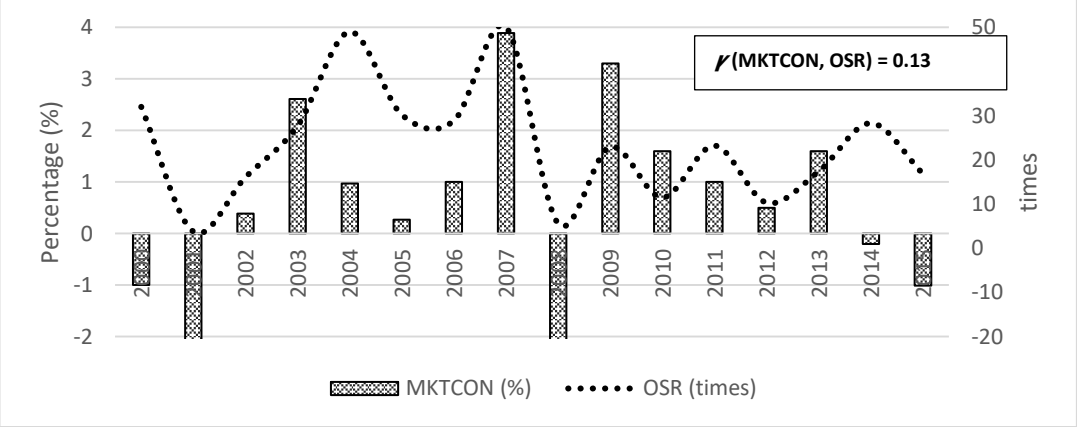

Figure 4.10
Mean of the three months weighted market returns and oversubscription ratios of IPOs for the period 2000 to 2015.
Sources: IPO Prospectus and Bursa Malaysia

4.2.3.2 Retail Investor Involvement (RETAIL)

As established for this study, retail investors are individuals who purchase securities in smaller amounts for their personal accounts. As shown in Table 4.1, the average participation of retail investors (RETAIL) was 22.07 percent. The RETAIL value ranged from 0 to 100 percent, in which case the IPOs are totally offered to retail investors through public issues. Retail investors' involvement as observed in Figure 4.11, was considered low for the period from 2002 to 2015, as compared to 2000 and 2001. The highest percentage of retail offering issues was 56.9 percent in 2000 while the lowest was 12.39 percent in 2009.

In terms of correlation of retail investor involvement and oversubscription, Table 4.1 demonstrates that RETAIL correlated negatively with OSR with a correlation value of -0.17. According to Rock (1986), IPOs with large allocations to uninformed investors or retail investors would face adverse selection problems as argued in the winner's curse theory. Thus, the involvement of uninformed investors or retail investors often presents a bad signal as it is associated with low company prospects which would result with lower subscription rates.

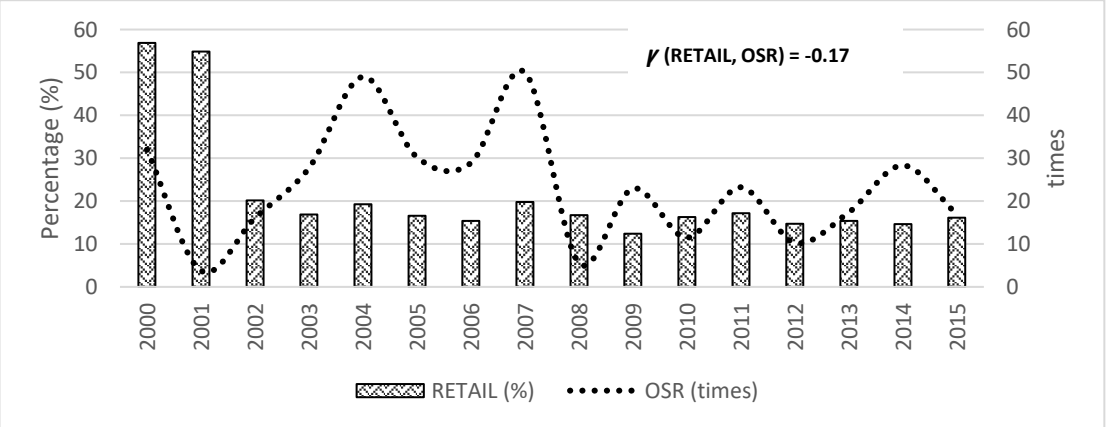

Figure 4.11
Mean retail investors involvement and oversubscriptions of IPOs for the period 2000 to 2015.
Sources: IPO Prospectus and Bursa Malaysia

4.2.3.3 Investor Sentiment (DRETURN)

Meanwhile, investor sentiment is associated with periods of good or bad initial returns. This study employed a dummy variable (DRETURN) that equalled to "1" to represent periods of high initial returns and "0" otherwise, as suggested by Baker and Wurgler (2006), Bayley *et al*. (2006), and Low and Yong (2011). As shown in Table 4.1, the average DRETURN reported a mean of 0.41.

Figure 4.12 illustrates that the highest average annual DRETURN was 58.80 percent in 2008, while the lowest was 20.69 percent in 2004. The yearly trend showed that initial returns closely follow oversubscription. It is not surprising that the high oversubscription phenomenon is usually related to large IPO underpricing and this seems consistent with the findings of previous studies, such as Agarwal *et al*. (2008), and Low and Yong (2011).

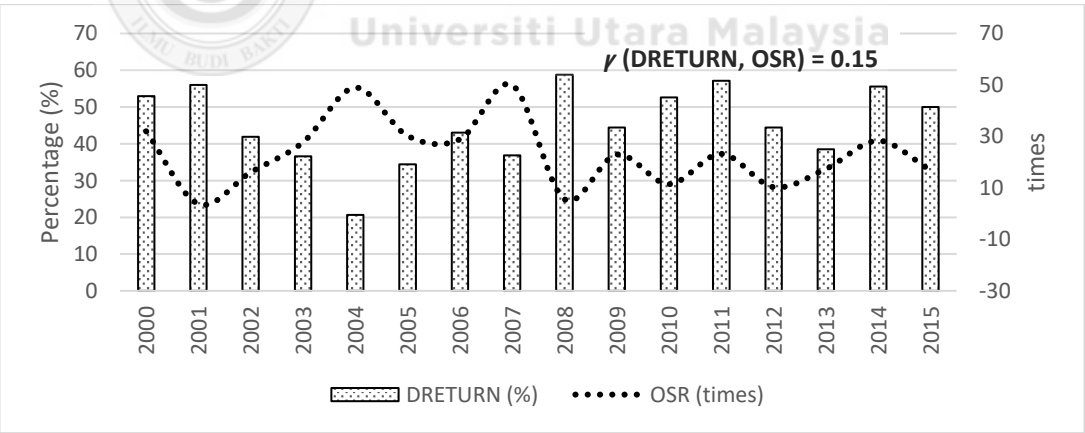

Figure 4.12
Mean investor sentiment and oversubscription ratio of the IPOs from year 2000 to 2015.
Source: IPO Prospectus and Bursa Malaysia

4.2.3.4 Offer Size (SIZE)

As established earlier on, the offer size (SIZE) proxies for IPO proceeds. As shown in Table 4.1, the average offer size for the entire period from 2000 to 2015 was RM

154.84 million or ln 17.18, with the minimum offer size to be RM 2.4 million or ln 14.69, as recorded by Parade Season Berhad, a company listed in June 2003. Meanwhile, the maximum offer size was RM 12.52 billion or ln 23.25, which was recorded by Petronas Chemicals Group Berhad, a company listed in November 2010. From the analysis, it was observed that SIZE was negatively and significantly correlated (-0.29) to oversubscription, indicating that a larger offer size would be associated with a lower oversubscription of the IPO. This supported that a larger offer size would mean more shares are readily available for subscription. This is consistent with past studies in the Malaysian market, such as Abdul-Rahim and Yong (2010), Low and Yong (2011), Mohd-Rashid *et al*. (2014) and Yong (2009).

Figure 4.13 shows the highest offer size to be RM 1.73 billion or ln 19.06, as recorded in 2012 which was due to mega IPO listings, such as Astro, Felda Global Venture, Gas Malaysia, and IHH Healthcare. Meanwhile, the lowest offer size was RM 39.03 million or ln 16.72, which was recorded in 2005. In this particular year, more issuers listed their IPOs in the MESDAQ market.

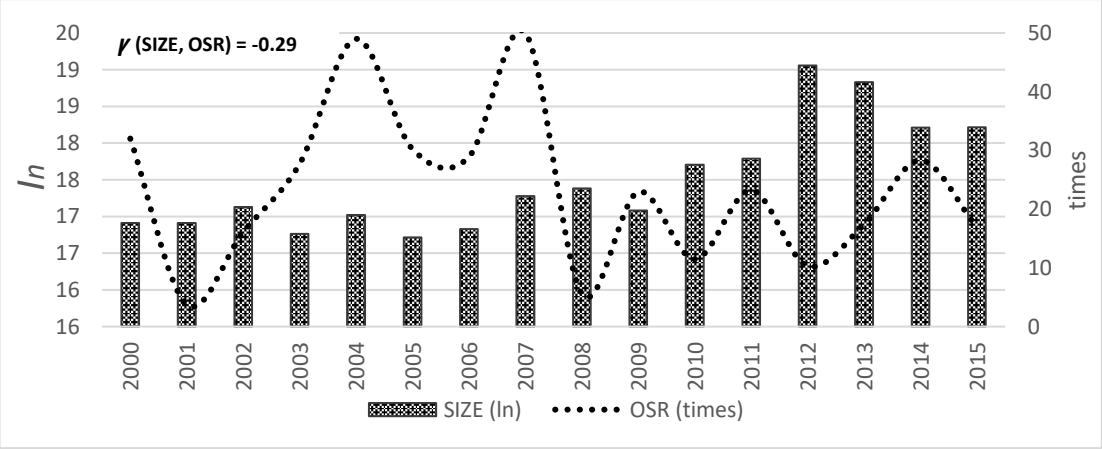

Figure 4.13
Mean ln size *and oversubscription ratio of the IPOs from year 2000 to 2015.*
Sources: IPO Prospectus and Bursa Malaysia.

4.2.3.5 Listing Board (DBOARD)

This study used a dummy variable (DBOARD) that equalled to "1" to represent IPOs listed in the Main Market and "0" for IPOs listed in the ACE Market of Bursa Malaysia. The findings showed that, on average, the ratio of IPOs listed on the Main Board was 0.69 or 69 percent, which is slightly higher than that reported in Abdul-Rahim and Yong (2010) with 54.32 percent (Main Board and Second Board) for the period from 1999 to 2007, and Taufil-Mohd (2007) with 0.68 or 68 percent for the period from 1990 to 2002.

Figure 4.14 shows that IPOs listed on the Main Market were higher in the beginning of the study period, especially from 2000 to 2002, which were 100, 100, and 91 percent respectively. The lowest IPO listed on the Main Market was 37.50 percent, which was recorded in 2005, due to more issuers listing their IPOs in the MESDAQ market.

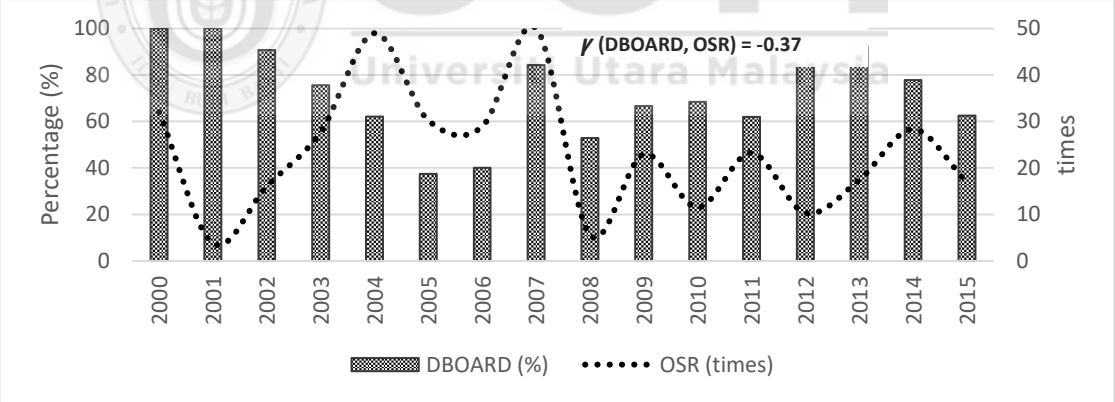

Figure 4.14
Mean listing board and oversubscription ratio of the IPOs 2000 to 2015.
Source: IPO Prospectus and Bursa Malaysia

From Table 4.1, it was evident that DBOARD was observed to be negatively and significantly correlated (-0.37) with oversubscription. The negative correlation indicated that oversubscription rates of firms seeking listing on the Main Market to be low. This could be attributed to the fact that firms listed on the Main Market have

higher offer prices which affect the demand from investors, especially retail investors. This was consistent with past studies on the Malaysian market, such as by Abdul-Rahim and Yong (2010) and Taufil-Mohd (2007). On the other hand, firms that listed on the ACE Market had lower offer prices and had higher oversubscription rates, as shown in Table 4.2 based on a final sample of 410 IPOs listed on Bursa Malaysia from January 2000 to December 2015. This result was consistent with Beatty and Welch (1996) who argued that firms with lower offer prices would attract more investors to subscribe to their IPOs.

Table 4.2:
Mean values between OSR, number of shares issued and IPOs offer price

	OSR (times)	Number of Shares Issued	Offer Price (RM)
Main Market (n = 281)	18.85	99,815,169.00	1.39
ACE Market (n = 129)	46.42	41,137,155.00	0.46

4.2.3.6 Financial Crisis (DCRISIS)

This study used a dummy variable (DCRISIS) that takes a value of "1" if an IPO is offered during the period of financial crisis and "0" otherwise. The global financial crisis occurred in 2008 and 2009. As reported in Table 4.1, the average DCRISIS was 0.06, which indicated that 6 percent of total IPOs or 27 IPOs were issued during this period.

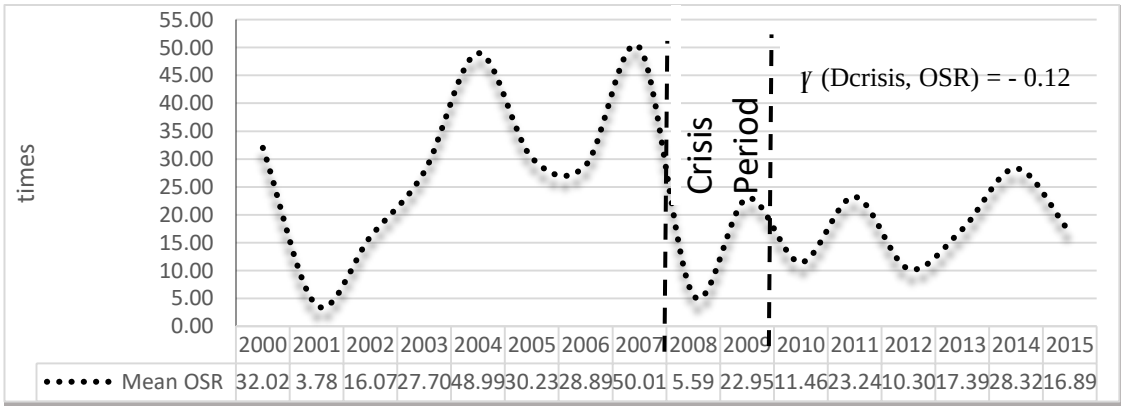

Figure 4.15
Mean financial crisis and oversubscription ratio of IPOs for the period 2000 to 2015.
Sources: IPO Prospectus and Bursa Malaysia.

Correlation for the financial crisis (DCRISIS) was negatively significant (-0.12) in influencing oversubscription. This was because during the global financial crisis, most investors would not subscribe to IPO shares as the market turned bearish and this reduced the subscription rate. However, this finding was contradictory to the results reported in the study by Taufil-Mohd (2007).

4.3 Results of Assumption of OLS

The results of the assumptions of ordinary least square (OLS) as discussed in Chapter Three are reported in this section. This is required prior to reporting and interpreting the results from the multivariate regression models. The outcomes of the assumptions of OLS that comprise data normality, absence of multicollinearity, absence of heteroscedasticity, absence of autocorrelation, linearity, and outliers are verified to evidence the reliability of the regression model.

4.3.1 Data Normality

The Jarque-Bera (*JB*) test statistics was used to examine the normality of data distribution and to ensure the robustness of the findings. Based on the *JB* test, a normal distribution can be determined by observing the skewness, kurtosis, and the *JB* probability of residuals. The sample could be considered normal if the shape of the probability distribution is leptokurtic. Graphical presentations in Figure 4.15 illustrates that the regression residuals distribution was skewed to the right with kurtosis of 11.45.

The *JB* probability of 0.000 rejects the null hypothesis that the residuals are normally distributed. However, for this study, the problem of non-normality of the residuals could be tolerated and should not be an issue because this study employed financial

data. According to Vogelvang (2005), financial data usually comprise outliers that deviate from other residuals. Furthermore, the central limit theorem posited that the normality assumption could be ignored due to the sample size, which in this study was sufficiently large at 410.

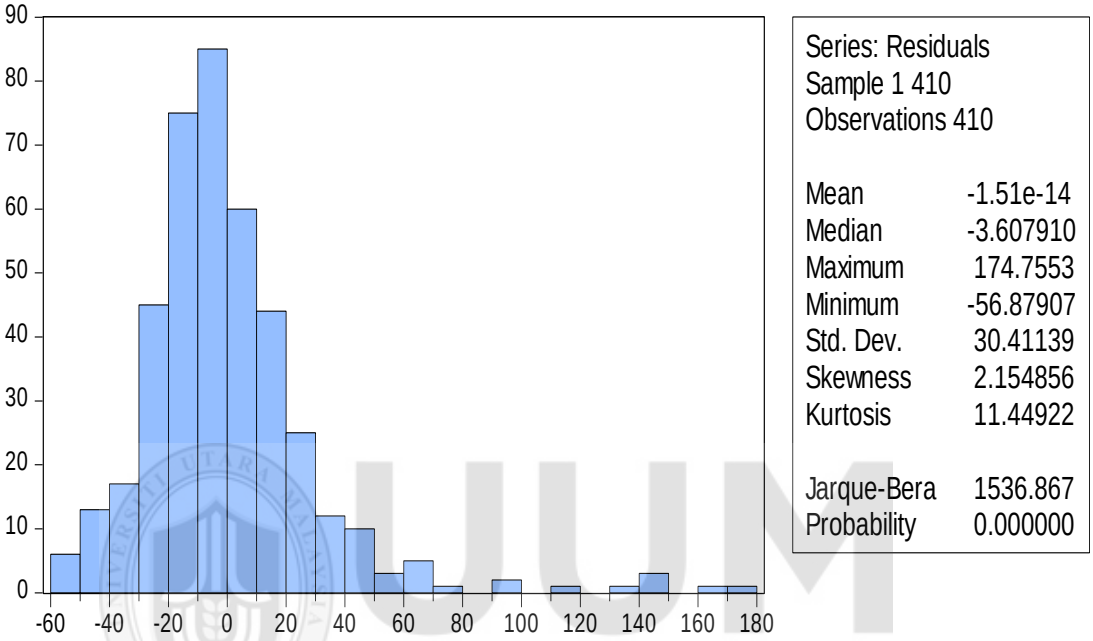

Figure 4.16
Results of normality test

4.3.2 Multicollinearity

The threat of multicollinearity was evaluated by using the bivariate Pearson correlation coefficient analysis between independent variables. Table 4.3 presents the correlation matrix for all variables. Most of the independent variables had a correlation of less than 0.50 (0.01 to 0.41), except for the correlation between *Bumiputera* equity ownership (BEQ) and retail investor involvement (RETAIL), which showed a highly significant relationship of 0.84. This figure indicated a potential multicollinearity problem, though it was still lower than the 0.90 cut-off point (Asteriou & Hall, 2007).

Table 4.3

Pearson's correlation matrix between variables

Variables	OSR (times)	GOP (%)	BEQ (%)	BUMI Δ	DSHARIAH	SHARIAH Δ	CASH (%)	DEBT (%)	DMECHANISM	MKT CON	RETAIL (%)	DRETURN	LNSIZE	DBOARD	DCRISIS
OSR (times)	1	0.16***	-0.19***	-0.13***	0.09*	-0.06	-0.04	-0.21***	-0.14***	0.13***	-0.17***	0.15***	-0.29***	-0.37***	-0.12**
GOP (%)		1	-0.17***	0.09*	-0.04	0.06	0.18***	-0.26***	-0.82*	-0.01	-0.18***	0.08*	-0.04	-0.27***	0.03
BEQ (%)			1	0.05	0.02	0.05	-0.03	0.13***	-0.93*	-0.08*	0.84***	-0.02	0.02	0.52***	-0.11**
BUMI Δ				1	-0.19***	0.55***	0.07	0.11**	0.23***	0.04	-0.18***	0.09*	0.38***	0.05	-0.01
DSHARIAH					1	-0.15***	-0.01	-0.11**	0.06	-0.02	0.07	0.02	-0.09*	-0.02	-0.04
SHARIAH Δ						1	0.04	0.11**	0.15***	-0.03	-0.10**	0.03	0.29***	0.07	-0.07
CASH (%)							1	-0.21***	-0.05	-0.08	-0.03	0.03	-0.05	-0.16***	0.05
DEBT (%)								1	0.18***	-0.02	0.05	-0.03	0.35***	0.24***	0.01
DMECHANISM									1	0.03	-0.15***	0.39	0.68***	0.16***	-0.03
MKT CON										1	-0.10**	-0.01	-0.04	0.01	-0.11**
RETAIL (%)											1	0.01	-0.22***	0.39***	-0.10*
DRETURN												1	-0.07	-0.14***	0.07
LNSIZE													1	0.41***	0.02
DBOARD														1	-0.06
DCRISIS															1

Notes: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Oversubscription ratio (OSR) is the number of times the IPOs are oversubscribed. Growth opportunity (GOP) is the percentage of proceeds to growth. Cash *Bumiputera* equity ownership (BEQ) is total number of shares allocated to *Bumiputera* public investors. Revised *Bumiputera* equity requirement (BUMI Δ) is a dummy variable take value of 1 following new *Bumiputera* equity ruling from June 2009 and 0 otherwise. DSHARIAH is dummy that takes a value of 1 for *Shariah*-compliant IPOs and 0 otherwise. Revised *Shariah*-compliant status (SHARIAH Δ) is a dummy variable take value of 1 following new *Shariah* guidelines introduced in November 2013 and 0 otherwise. (CASH) is the percentage of total cash to total assets. Debt to asset (DEBT) is the percentage of total liabilities to total assets. DMECHANISME refers to the IPO pricing mechanism that takes a value of 1 if book-building mechanism is used in pricing the IPOs and 0 if fixed-priced mechanism is used. Market condition (MKTCON) is the weighted average returns of EMAS Index, three months prior to listing. Retail offering (RETAIL) is the allocation of shares to public (uninformed) investors. DRETURN is the dummy that takes a value of 1 if IPO is listed in a quarter in which equally weighted average initial returns of the quarter is above the median and 0 otherwise. LN (SIZE) is the natural logarithm of the total number of shares issued times the offer price. DBOARD refers to the listing board that takes a value of 1 if an IPO is listed in the Main Market and 0 if listed in the ACE Market. DCRISIS refers to the period of the global financial crisis that takes a value of 1 if an IPO is offered in the period 2008 to 2009 and 0 otherwise.

Furthermore, to confirm the existence of multicollinearity problem, this study estimated the model by employing variance inflation factors (VIF). Table 4.4 presents the VIF results. Based these results, there was no multicollinearity issue between BEQ and RETAIL. All independent variables showed VIF values that were consistently less than 4.58, far below the 10.00 cut-off point (Gujarati, 2009).

Table 4.4
Variance Inflation Factors Result

Independent Variables	Retail Investors	Institutional Investors
GOP	1.20	1.53
BEQ	4.58	1.59
BUMI Δ	1.77	5.17
DSHARIAH	1.08	1.49
SHARIAH Δ	1.49	2.06
CASH	1.10	2.34
DEBT	1.31	1.47
DMECHANISM	2.12	8.39
MKTCON	1.06	1.36
RETAIL	4.45	-
INSTITUTIONAL	-	3.97
DRETURN	1.06	1.53
SIZE	3.43	9.72
DBOARD	2.11	2.38
DCRISIS	1.05	2.14

4.3.3 Heteroskedasticity

In this study, the potential of heteroskedasticity was estimated by using the Breusch-Pagan-Godfrey test. This test examines the assumption that the variance of the errors is constant. Based on the test results reported in Appendix F, it was indicated that the null hypothesis of homoscedasticity could be rejected (p-value < 0.00). Thus, for this study, it could be concluded that the heteroscedasticity issue does exist in the model.

4.3.4 Autocorrelation

This study employed the Durbin-Watson (DW) statistic to detect serial correlation. Based on Table 4.3, the results showed that the DW statistic to be 1.84, which was located between the lower bound (1.77) and upper bound (1.91) limits. According to Savin and White (1977), when the DW value falls in between the lower and upper bound limits, the obtained result would be inconclusive. Since the model suffers from both heteroscedasticity and autocorrelation problems, the Newey-West covariance estimator was used to adjust the standard errors in the ensuing regression analysis.

4.3.5 Outliers

Prior to the regression analysis, this study screened the data to reduce outliers which might affect the regression results. Appendix G reports the descriptive statistics of the initial sample of 422 firms and Appendix H reports the results of the regression analysis before removal of the outliers. The rule of thumb is to remove outliers only if the extreme values are very influential in influencing the regression model. By employing the studentized residuals (Ruppert, 2004), 12 IPOs with extreme values were removed. As a result, the sample size was reduced from 422 to 410 IPOs. This final sample represented 97 percent of the total initial sample.

4.4 Comparison of the Mean Values High and Low Demand IPOs

This section compares the relevant statistics for high and low oversubscription of IPOs, using the t-test and Mann-Whitney U test. The high investor demand group consisted of IPOs with oversubscription ratios that were above the mean of all oversubscriptions.

Meanwhile, the low investor demand group had IPOs in which the oversubscription ratios were lower than the mean of all oversubscriptions. The independent t-test (parametric) was used to examine the differences in means between the two groups. Parametric tests would assume that the oversubscription ratios (OSR) were normally distributed. In case the OSRs in this study were not normally distributed, non-parametric tests such as the Mann-Whitney test would be more appropriate. In reporting the results of an independent Mann-Whitney U test, the significant value of the test (p-value) and Z-statistics value were required. The independent sample t-test and Mann-Whitney U test results on each independent variable are reported in Table 4.5.

The level of OSR differed substantially across high and low investor demand groups, based on the observed mean values. In the case of high investor demand group, the oversubscription was 48.78 times, while for the low-investor demand group, the average was only 6.27 times. This would imply that high oversubscription ratio is associated with the high investor demand group. Meanwhile, the average of growth opportunity (GOP) for the high investor demand group was 44.43 percent as compared to 34.76 percent for the low investor demand group. This suggested that investors were more interested in subscribing to IPOs with relatively high growth prospects, which was consistent with the outcome of the regression analysis.

The next comparison revealed that on average, the *Bumiputera* equity ownership (BEQ) was 6.47 percent for the high investor demand group, as compared to an average of 5.11 percent for the low investor demand group. This indicated that high allocations to *Bumiputera* investors would increase the subscription rate as issuers would offer a larger

discount in order to attract *Bumiputer*a investors. In addition, the competition among non-*Bumiputera* investors could lead to a higher oversubscription. The revised *Bumiputera* equity requirement (BUMI Δ) in June 2009 resulted in the high investor demand group (an average 0.15 or 31 IPOs) becoming smaller than the low investor demand group (an average 0.26 or 53 IPOs). The reduction in allocation of shares to *Bumiputera* investors indicated that issuers would not need to reduce the offer price to attract *Bumiputera* subscription. Furthermore, this would also reduce competition among the non-*Bumiputera* in subscribing to IPOs which would lead to lower oversubscription.

Next, the average of *Shariah-compliant* IPOs for the low-investor demand group (0.87) was less than that of the high-investor demand group (0.93). This suggested that *Shariah*-compliant status could attract a wide range of investors. Meanwhile, the average debt was 45.45 percent for the low investor demand group, as compared to an average of 37.92 percent for the high investor demand group. This indicated that fewer investors were subscribing to IPOs issued by companies with high debt ratios, since these companies would potentially face financial distress or there is an increasing risk of default. Furthermore, highly leveraged IPOs might use the proceeds to reduce their leverage levels. This would send a negative signal about the future firm's cash flows to finance its debt (Miller & Orr, 1966).

For the pricing mechanism (DMECHANISM), the average IPOs issued under mix mechanism for high-investor demand group (0.02) was lower than that of the low-investor demand group (0.11). This suggested that IPOs issued under mixed mechanism received lower subscription rate since offer prices of IPOs were closer to market value.

The comparison of evidences on market condition (MARCON) revealed that good market condition, with an average of 0.013 or 1.3 percent market returns, could attract higher subscription from investors, as compared to an average of 0.05 percent market returns that were mainly subscribed by the low investors demand group. This result indicated that high demand group believe that they would receive high returns from investing when the market condition is relatively good. This was reflected by an average of 40.23 percent initial returns (IR) received by the high investor demand group, as compared to an average of 13.05 percent generated by the low investor demand group. Meanwhile, investors would stay away from IPOs during the period of global financial crisis (DCRISIS) due to uncertainties in the stock market. An average of 3 percent or only 6 IPOs were highly demanded during the financial crisis compared to an average of 9 percent or 19 IPOs that experienced low demand during the same period.

Further comparison showed that on average, the offer size of IPO (SIZE) was *ln* 16.80 for the high demand IPO group as compared to an average of *ln* 17.56 for the low demand IPOs. This showed that with a large offering size, more shares would be readily available for subscription. This larger offer size would have an impact on reducing the incidence of oversubscription. In addition, large size offering is often associated with listing in the Main Market. In general, companies listed in the Main Market are well-known and apparently have high offer prices. As for the effect of listing on Main Market of Bursa Malaysia, only 0.57 or 164 IPOs were highly demanded by investors as compared to 0.80 or 230 IPOs that experienced less demand in the Main Market of Bursa Malaysia. These results supported that the demand would be lower for larger firms as the underpricing is expected to be lower for this group.

The t-test and Mann-Whitney U-test produced similar results between high and low investor sub-samples, except for retail which showed contradictory outcomes. The difference between the sub-samples of retail was only significant when the Mann-Whitney U-test was used. However, the trend consistently indicated that there is less participation from the high demand IPO group among retail investors as compared to low demand IPO group. This was in line with the winner's curse theory argument that uninformed investors or retail investors face adverse selection problems. This implied that uninformed investors or retail investors would be successful in bidding for IPOs shares in the absence of informed investors or institutional investors.

Overall, the observed mean differences for oversubscription ratios, growth opportunity, *Bumiputera* equity ownership, *Shariah*-compliant status, debt, revised *Bumiputera* regulatory requirement, pricing mechanism, market condition, initial returns, offer size, listing board, and financial crisis between high and low demand investor groups were all observed to be significant at least at the 5% level, except for cash and revised *Shariah*-compliant regulatory requirement. The insignificant results of cash in t-test and Mann-Whitney U test could be due to the minimal difference of 0.35 percent between cash of high and low demand investor groups. As for revised *Shariah*-compliant regulatory requirement, there are two possible explanations for the insignificant result with high and low demand investors groups. The first could be the small sample size of only 30 observations for the period November 2013 to December 2015. The second could be attributed to the recent decline in IPO listings, as Bursa Malaysia only listed 15 and 13 IPOs in 2014 and 2015, respectively. Therefore, the revised *Shariah*-compliant regulatory requirement did not have an impact on oversubscription during the period under study.

Thus, future studies may require a larger sample size to evaluate the impact of revised *Shariah*-compliant regulatory requirement on the performance of IPOs.

Table 4.5
Mean values between high and low demand IPOs

	High Demand IPOs (N=205)	Low Demand IPOs (N=205)	Mean difference	t-stat	Z-stat
OSR (times)	48.78	6.27	42.51	15.38***	-17.51***
GOP (%)	44.43	34.76	9.67	3.56***	-3.38***
BEQ (%)	6.47	5.11	1.36	-4.05***	-2.94***
BUMI Δ	0.15	0.26	-0.12)	-2.96***	-2.93***
DSHARIAH	0.93	0.87	0.06	1.96**	-1.95**
SHARIAH Δ	0.07	0.08	-0.01	-0.38	-0.38
CASH (%)	13.70	14.04	-0.35	-2.74	-0.65
DEBT (%)	37.92	45.45	-7.53	-4.13***	-3.63***
DMECHANISM	0.02	0.11	-0.09	-3.84***	-3.78***
MKTCON	0.013	0.0005	0.01	3.99***	-3.67***
RETAIL (%)	20.82	23.31	-2.50	-1.36	-2.14**
IR (%)	40.23	13.05	7.18	6.13***	-7.65***
LN (SIZE)	16.80	17.56	-0.76	-6.52***	-6.13***
DBOARD	0.57	0.80	-0.23	-5.15***	-4.99***
DCRISIS	0.03	0.09	-0.06	-2.44**	-2.43**

Notes: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Oversubscription ratio (OSR) is the number of times the IPOs are oversubscribed. Growth opportunity (GOP) is the percentage of proceeds to growth. *Bumiputera* equity ownership (BEQ) is the total number of shares allocated to *Bumiputera* public investors. Revised *Bumiputera* equity requirement (BUMI Δ) is a dummy variable take value of 1 following new *Bumiputera* equity ruling from June 2009 and 0 otherwise. DSHARIAH is dummy that takes a value of 1 for *Shariah*-compliant IPOs and 0 otherwise. Revised *Shariah*-compliant status (SHARIAH Δ) is a dummy variable take value of 1 following new *Shariah* guidelines introduced in November 2013 and 0 otherwise. Cash to asset (CASH) is the percentage of total cash to total assets. Debt to asset (DEBT) is the percentage of total liabilities to total assets. DMECHANISME refers to the IPO pricing mechanism that takes a value of 1 if book-building mechanism is used in pricing the IPOs and 0 if fixed-priced mechanism is used. Market condition (MKTCON) is the weighted average returns of EMAS Index, three months prior to listing. Retail offering (RETAIL) is the allocation of shares to public (uninformed) investors. DRETURN is the dummy that takes a value of 1 if IPO is listed in a quarter in which equally weighted average initial returns of the quarter is above the median and 0 otherwise. LN (SIZE) is the natural logarithm of the total number of shares issued times the offer price. DBOARD refers to the listing board that takes a value of 1 if an IPO is listed in the Main Market and 0 if listed in the ACE Market. DCRISIS refers to the period of the global financial crisis that takes a value of 1 if an IPO is offered in the period 2008 to 2009 and 0 otherwise.

4.5 Results from Ordinary Least Square Regression (OLS)

This section discusses the results of ordinary least square (OLS) regression based on the model shown in Equation nine to determine the effects of independent variables on oversubscription. It tests the hypotheses by employing cross-sectional multiple regressions. The eight hypotheses tested are restated as follows:

H1: Growth opportunity has a positive influence on oversubscription of IPOs.

H2: Bumiputera equity ownership has a positive influence on oversubscription of IPOs.

H3: The change in the Bumiputera equity requirement in June 2009 has a negative impact on oversubscription of the respective IPOs.

H4: Shariah-compliant status has a positive influence on oversubscription of IPOs.

H5: The change in the Shariah-compliance status guidelines in November 2013 has a positive impact on oversubscription of the respective IPOs.

H6: Cash ratio has a positive impact on oversubscription of IPOs.

H7: Debt ratio has a negative impact on oversubscription of IPOs.

H8: Pricing mechanism has a negative impact on oversubscription of IPOs.

The results of OLS regressions are presented in Table 4.6. The model, which included eight main variables and six control variables, could explain 25 percent of the variations in oversubscription. The F-statistics was significant at the 1 percent level. The results of the main independent variables, which were growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah*-compliant status regulation, cash, debt and pricing mechanism, and the control variables, which were market condition, retail investor involvement, investor sentiment, offer size, listing board, and financial crisis, are discussed in the next sub-section.

Table 4.6
Regression results of 410 IPOs listed during the period 2000 to 2015

Dependent variable is oversubscription ratio				
Independent Variables	Retail Investors		Institutional Investors	
	Coefficient	t-statistic	Coefficient	t-statistic
GOP	0.0835	1.6954*	0.0889	1.7784*
BEQ	1.1157	3.0097***	0.0101	0.0500
BUMI Δ	-13.1976	-2.8687***	-12.7043	-2.5780**
DSHARIAH	6.1709	1.8904*	4.6580	1.4261
SHARIAH Δ	8.2190	2.0613**	7.6475	2.0025**
CASH	-0.2721	-2.1772**	-0.2960	-2.2602**
DEBT	-0.1530	-2.1708**	-0.1651	-2.2542**
DMECHANISM	2.9752	0.5866	-3.3929	-0.6773
MKTCON	114.2608	2.5752**	118.5102	2.6382***
RETAIL	-0.5420	-3.6453***	-	-
INSTITUTIONAL	-	-	0.1373	2.0392**
DRETURN	8.6494	3.0083***	7.7658	2.7871***
SIZE	-4.8559	-2.7314***	-3.3208	-1.9362**
DBOARD	-19.5053	-3.6709***	-16.4799	-3.4471***
DCRISIS	-17.5383	-4.3025***	-17.4938	-3.8024***
C	129.8452	4.2720***	91.9737	3.3053***
Adjusted R-squared	0.2244		0.2121	
F-Statistics	9.4545***		8.8646***	
Probability	0.0000		0.0000	
Durbin-Watson	1.8362		1.8486	
VIF range	1.0507 – 4.5784		1.3627 – 8.3879	

Notes: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Oversubscription ratio (OSR) is the number of times the IPOs are oversubscribed. Growth opportunity (GOP) is the percentage of proceeds to growth. *Bumiputera* equity ownership (BEQ) is the total number of shares allocated to *Bumiputera* public investors. Revised *Bumiputera* equity requirement (BUMI Δ) is a dummy variable take value of 1 following new *Bumiputera* equity ruling from June 2009 and 0 otherwise. DSHARIAH is dummy that takes a value of 1 for *Shariah*-compliant IPOs and 0 otherwise. Revised *Shariah*-compliant status (SHARIAH Δ) is a dummy variable take value of 1 following new *Shariah* guidelines introduced in November 2013 and 0 otherwise. Cash to asset (CASH) is the percentage of total cash to total assets. Debt to asset (DEBT) is the percentage of total liabilities to total assets. DMECHANISME refers to the IPO pricing mechanism that takes a value of 1 if book-building mechanism is used in pricing the IPOs and 0 if fixed-priced mechanism is used. Market condition (MKTCON) is the weighted average returns of EMAS Index, three months prior to listing. Retail offering (RETAIL) is the allocation of shares to public investors. Institutional offering (INSTITUTIONAL) is the allocation of shares to institutional investors. DRETURN is the dummy that takes a value of 1 if IPO is listed in a quarter in which equally weighted average initial returns of the quarter is above the median and 0 otherwise. LN (SIZE) is the natural logarithm of the total number of shares issued times the offer price. DBOARD refers to the listing board that takes a value of 1 if an IPO is listed in the Main Market and 0 if listed in the ACE Market. DCRISIS refers to the period of the global financial crisis that takes a value of 1 if an IPO is offered in the period 2008 to 2009 and 0 otherwise.

4.5.1 Growth Opportunity on Oversubscription

The results in Table 4.6 show that the coefficient of growth opportunity (GOP) was statistically significant at $\alpha = 0.10$ level. The coefficient of GOP was 0.0808. This means that a "1" unit increase in GOP would lead to a "0.0808" times increase in oversubscription. Thus, the first hypothesis (H1: Growth opportunity has a positive influence on oversubscription of IPOs) cannot be rejected. The hypothesis was based on the prediction that companies which commit to higher growth opportunities are expected to send a signal of high quality IPOs and hence have lower risks. Therefore, investors essentially interpret the good prospects of the firm by their willingness to subscribe to the issue which increases the oversubscription ratio. In other words, the positive relationship between growth opportunity and oversubscription supports the signalling theory. If a firm used the allocation from the proceeds for expansion of its business, it sends a positive signal toward the prospect of the firm and accordingly attracts investors to subscribe to the IPOs. This conjecture was consistent with Álvarez and González (2005) who argued that firms use the strategy of signalling their quality by revealing information through disclosures in the prospectus. These disclosures may influence demand for shares, since informed investors would tend to subscribe to good quality issues.

The positive relationship between growth opportunity and oversubscription was also consistent with the findings in past studies, such as by Abdul-Rahim and Che-Embi (2013); Chung *et al*. (2005); Lai and Lo (2012); Leone *et al*. (2007); Purnanandam and Swaminathan (2004); Rajan and Servaes (1997); Xiao (2011). Chung *et al*. (2005) documented that investors would tend to favour firms that have good growth prospects,

as they could generate high returns. In addition, growth opportunity would also signal the quality of IPOs since investors believe that the management is certain about better growth prospects. This is because, the management usually has better information regarding the business strategy to utilise the resources and foster growth. Meanwhile, Rajan and Servaes (1997) also reported a similar positive relationship between growth opportunity and performance of IPOs. They noted that during listing, firms with high growth opportunities could raise funds easily from IPOs due to the quality of IPOs which attracted investors. Furthermore, unsuccessful investors in the bidding process would try to participate in the open market once it has been listed. In most cases, the IPO price would increase in the immediate aftermarket and generate higher initial returns. This is a good indication that the positive impact of growth opportunity on oversubscription is consistent with signalling quality. Therefore, the issuers must reveal the intended use of proceeds for growth opportunity. With the anticipated growth opportunity, such as expansion of business and R&D, the issuers might be motivated by a desire to diversify their products or sales that would contribute to achieve higher profits and provide better returns for shareholders. Furthermore, the analyst would write an attractive report regarding IPO prospects. In addition, this will attract investors to subscribe to the IPO as they believe in the bright future prospect of the company.

4.5.2 *Bumiputera* Equity Ownership

Bumiputera equity ownership (BEQ) was found to be significant and positively related to oversubscription at α = 0.01 level. A coefficient of 1.0942, as reflected in Table 4.6, indicated that a "1" unit increase in BEQ would lead to a "1.0942" times increase in

oversubscription. This study hypothesised that BEQ would be positively related to oversubscription based on the premise that *Bumiputera* equity ownership postulates underpricing to be used to signal prospects of the IPOs, which is in line with a few studies in Malaysia, such as by How *et al*. (2007), Jelic *et al*. (2001), Paudyal *et al*. (1998), and Prasad *et al*. (2006), who focused their investigation on the relationship between *Bumiputera* equity ownership and IPO underpricing.

The distinct feature of *Bumiputera* equity requirement in the Malaysian IPO market shows that the practice does not deviate from its mandatory requirement, as regulators have used the allocation process to redistribute wealth amongst the different ethnic groups. During the listing process, the issuers must comply with the 30 percent *Bumiputera* equity requirement policy. Therefore, it was believed that issuers would offer their IPOs at a larger discount, even though they would receive less proceeds in order to attract *Bumiputera* investors, which was in line with How *et al*. (2007), Paudyal *et al*. (1998), and Prasad *et al*. (2006). With the underpriced IPOs, the subscription rate among *Bumiputera* investors would increase as they would earn higher returns. Another explanation is that, the purchasing power among non-*Bumiputera* investors also increases the probability of oversubscription. The non-*Bumiputera* investors, especially of Chinese ethnicty, constitute 80 percent in the Malaysian stock market, which indicates that they have more purchasing power to speculate or invest (Ramayah *et al*., 2009). Thus by having a *Bumiputera* equity requirement policy in place, the allocation of shares to this ethnic group is reduced. Consequently, the competition among them would contribute to the oversubscription of IPOs. In other words, the competition among investors would be higher due to the lower allocation of shares with lower offer price, since succesfull

applicants would require higher returns. This could explain the significant effect of this variable on the oversubscription ratio.

4.5.3 Revised *Bumiputera* Regulatory Requirement

The revised *Bumiputera* regulatory requirement (BUMI Δ) that became effective in June 2009 has an influence on investors' demand for IPOs. The liberalised *Bumiputera* equity requirement from 30 percent to 12.5 percent from the number of enlarged issues was an initiative by the Government through the Securities Commission (SC) to make the market more competitive and attractive to investors. As expected, the revised *Bumiputera* regulatory requirement was observed to have a significant but negative relationship with oversubscription, as shown in Table 4.6. The coefficient of BUMI Δ was -13.1646, which meant that after the revised *Bumiputera* regulatory requirement in 2009, oversubscription was reduced by 13.1646 times. Therefore, for this study the third hypothesis was not rejected.

Meanwhile, according to Prasad *et al*. (2006), after the Malaysian Government exercised the 30 percent *Bumiputera* equity requirement in 1976, the Malaysian IPO market experienced an increasing trend in underpricing and oversubscription. It appeared that the reverse occurred when the Government relaxed the requirements from 30 percent to 12.5 percent, effective in June 2009. Since the relaxation of this restriction, the issuers and underwriters would not need to underprice their IPOs to attract *Bumiputera* investors. With the better IPO price, the issuers would raise higher proceeds. However, less underpricing would mean lower return, which may reduce the number of applicants from

Bumiputera investors. Another explanation is that the allocation increase of shares to non-*Bumiputera* investors would likely reduce competition among this group of investors to subscribe to the IPOs, since there are more shares available. Consequently, this reduces the possibility of oversubscription of IPOs.

4.5.4 *Shariah*-Compliant Status

Table 4.6 indicates that the *Shariah*-compliant status (DSHARIAH) is positively significant in explaining oversubscription. The coefficient of DSHARIAH showed an increase of oversubscription by 6.40 times if IPOs are classified as *Shariah*-compliant. Thus, the third hypothesis was accepted. The *Shariah*-compliant IPOs have gone through strict monitoring processes and stringent regulations to fulfil the requirement of the SAC, SC, and Bursa Malaysia. Therefore, these IPOs are more likely to have greater demand from the market as the shares could attract both Muslim and non-Muslim investors. This was consistent with Sadeghi (2008) who found that shares included in the *Shariah*-compliant index usually receive positive response from investors due to the permissible element in this index, which in turn increases the oversubscription.

The finding of this study was consistent with those by Abdul-Rahim and Che-Embi (2013) and Abdul-Rahim and Yong (2010), who found a positive relationship between *Shariah*-compliant status and underpricing in the Malaysian market. According to them, there are advantages of issuing *Shariah*-compliant securities, as the issuer would be able to raise funds easily, and the shares could be sold to a wider group of investors. In addition, the demand for *Shariah*-compliant IPOs increases as these shares are free from non-

permissible elements. Subsequently, this status would lead to higher demand for the IPO and this would increase the subscription rate from both Muslim and non-Muslim investors.

4.5.5 Revised *Shariah*-Compliant Regulatory Requirement (SHARIAH Δ)

As mentioned earlier, the Securities Commission through the *Shariah* Advisory Council revised the *Shariah*-compliant status guideline, effective from 29 November 2013. Table 4.6 shows that the coefficient of revised *Shariah*-Compliant Regulatory Requirement (SHARIAH Δ) was significantly positive with oversubscription. The coefficient of 8.132 indicated that the oversubscription ratio increases by 8.132 times when SC revised the *Shariah*-compliant regulation. Therefore, the fourth hypothesis was accepted (H4: The change in the *Shariah*-compliant status guidelines in November 2013 has a significant positive impact on oversubscription of the respective IPOs). This was based on the premise that IPOs with revised *Shariah*-compliance would have fulfilled the strict requirements set by the SAC. Therefore, these IPOs would be more likely to have greater demand from the market, which in turn increases the oversubscription ratio. Under the new *Shariah*-compliant status guidelines, companies with combined activities which were previously assessed under the 10 percent and 25 percent benchmarks are now being assessed under the 5 percent and 20 percent benchmarks. In addition, companies are also screened based on total conventional debt and cash invested in conventional accounts, which were not used in previous screenings. Firms that are unable to reduce the amount of conventional debt-to-total-assets and cash-to-total-assets to less than 33 percent are categorised as non-*Shariah* compliant. With this new requirement, it would ensure that a company's income is safe from non-permissible activities. By having this new

requirement in place, Malaysia would be on par with the screening process around the world, as the Malaysian securities market is aligned with international standards (Malaysia International Islamic Financial Centre, 2013). This feature would make Malaysian IPOs more attractive to foreign investors, particularly the Middle Eastern investors who are looking for *Shariah*-compliant securities as these shares are free from non-permissible elements.

4.5.6 Cash

As evident from Table 4.6, cash was significantly negatively related to oversubscription in the Malaysian IPO market. The coefficient of CASH was -0.274, this was not in the direction hypothesised in this study. Since the coefficient of cash was contradictory to the predicted effect, the related hypothesis was rejected. This study hypothesised that CASH is positively related to oversubscription based on the argument that cash would improve a firm's cash flow, and sustain business and firm growth (Booth *et al*., 2001; Miller & Orr, 1966; Myers, 1984). According to Booth *et al*. (2001), profitable firms held more cash and use less debt. Higher cash would signal positive information about the firm. This is in line with the argument by Myers (1984) who noted that since firms hold cash for the purpose of future investment, high cash holding sends positive signals on the growth or firm's value. Nevertheless, this result supported the argument made by Jensen and Meckling (1976). This finding supported the implication stated in the agency theory by Jensen (1986), who asserted that managers of cash-rich companies tend to invest in negative net present value (NPV) projects and the shareholders would have to bear the losses when equity value decreases.

Companies with large cash balances have sufficient funds to meet their obligations, such as payroll and loan repayments. However, high cash levels on the balance sheet could convey a bad signal. This is because investors would raise queries as to why the management would not invest the money and whether the company has lost its investment opportunities. In addition, there would be opportunity costs when the management spends on luxury items, given the large cash balances. The company would also face higher agency costs when holding large cash balances and tend to invest in projects that do not maximise shareholders' value. This is in line with agency theory which purports that the management might be motivated by self-interest in inefficiently handling large cash flows (Jensen, 1986). According to Jensen (1986), managers would invest in projects that do not maximise the shareholders' value when the firm has a lot of cash in hand, which would limit a company's capacity to grow. In this situation, investors would perceive excess cash negatively and might not subscribe to the shares of such firms. Based on the results of this study, issuers must have a good cash management policy. Holding large cash balance does not necessarily generate higher returns. Thus, it would be good to maintain minimal cash balance to meet unexpected needs.

4.5.7 Debt

Debt (DEBT) was found to be significant and negatively related to oversubscription. A coefficient of -0.1564, as reflected in Table 4.6, indicated that a "1" unit increase in DEBT would lead to a decrease of "-0.1564" times in oversubscription. The hypothesis was based on the expectation that investors would be reluctant to subscribe to IPOs having large debts, since the leveraged firm would normally face slower growth. This was in line with

Campello (2006), Fama and French (2002), Helwege and Liang (1996), Kim and Sorensen (1986), and Myers (2001). Thus, the eight hypothesis was accepted.

The negative relationship between debt and oversubscription found in this study contradicted the implication stated in agency theory. Jensen (1986) argued that debt could mitigate agency conflicts between managers and shareholders. According to Jensen (1986), managers administer their companies more efficiently because debt holders are monitoring the company, which in turn could have a positive influence on the value of equity. However, this was not the case with the findings of this study, as the high debt in a company would be perceived negatively by investors. The findings of this study appeared to be consistent with the signalling theory, where firms with high debt levels bear high costs of borrowing that limit their investments and affect future growth (Fama & French, 2002; Kim & Sorensen, 1986). This is attributed to the fact that a company with excessive debts would use much of its income for loan repayments, which would increase costs and limit the company's capacity for investment. This was consistent with Al-Najjar (2013), Al-Najjar and Belghitar (2011), Fama and French (2002), Myers (1984), and Whited (1992). Meanwhile, levered firms need to raise cash from the equity market, such as IPOs, when cash from operations is not sufficient to pay debt. This exhibits a bad signal as proceeds from IPOs are expected to be used to pay debt rather than being invested for growth of the company. In addition, firms with high debt levels also face the risk of default. Therefore, investors would be cautious before subscribing to the IPOs issued by companies with high debt ratios. This would send an unfavourable signal to investors that would influence their decision in subscribing to the IPOs. Another explanation for the lower oversubscription of levered firms is that firms with high debt would need to be

monitored closely. This would increase monitoring or agency costs which makes it unattractive for investors to subscribe to these IPOs.

In terms of the company's debt position, each company must have its appropriate debt limit to cover its operations and investments. Firms with high debt levels would face financial distress as debt financing is frequently accompanied by strict conditions or covenants, notwithstanding the need to repay principal and interest at specific dates. Inability to meet the debt repayment as scheduled exposes the firm to the possibility of bankruptcy. It could therefore be surmised that debt ratios in IPOs prior to listing provide a signal to investors when making decisions to subscribe to these IPOs. Furthermore, investors would be careful before subscribing to IPOs issued by companies with high debt ratios.

4.5.8 Pricing Mechanism

The dummy for the pricing mechanism (DMECHANISM) is statistically insignificant at 2.98. An IPO issued under mixed mechanism does not lead to an increase in oversubscription. Thus, the hypothesis eight is rejected. This study expects that the coefficient for DMEHANISM should be negative because the price of IPOs issued under mixed mechanism would be reasonably closer to market value. Thus, less underpricing would mean lower return, which may reduce the number of applicants from investors. However, this is not the case for this study. A possible explanation for the positive relationship is that IPO issued under book-building has a higher participation by cornerstone investors. Cornerstone investors are usually well-known institutional investors or sovereign wealth funds, such as Khazanah Nasional Berhad and Temasek

Holdings. Generally, these investors would agree in advance to purchase a large number of shares in an IPO issued by well-established firms (large firms). The large proportion of cornerstone investors who subscribe to the IPO would subsequently attract retail investors' interest in a particular stock and would increase the subscription rate. Nevertheless, the insignificant relationship indicates that this might not be applicable in the Malaysian IPOs.

4.6 Results on Control Variables

While examining the relationship of the main variables, this study also controlled for six other variables which were expected to influence oversubscription. The variables were market condition, retail investor involvement, investors' sentiment, offer size, listing board, and financial crisis.

4.6.1 Market Condition

In this study, the weighted average of three months EMAS index returns prior to IPO listing was used to represent the market condition (MKTCON). The results in Table 4.6 show that market condition is positively significant in explaining oversubscription, with the coefficient of market condition to be 115.78. This finding suggested that oversubscription of IPOs is very much dependent on market condition prior to the offering, where good market conditions would reduce uncertainty of an investment. Thus, it would attract investors to subscribe to the IPOs and contribute to oversubscription. This result was consistent with previous studies, such as by Derrien and Womack (2003), Loughran and Ritter (2002), Lowry and Schwert (2001), Ma and Faff (2007) and Mohd-

Rashid *et al*. (2014), who inferred that market conditions are vital in influencing investors to subscribe to IPOs. This finding suggested that to increase the interest of investors, issuers should list their IPOs during good market conditions. During bullish market conditions, subscribing to an IPO may provide good returns to the investors. Economic and political stability also play important roles in influencing market conditions. Thus, the Government and policy makers must implement appropriate policies which would lead to a conducive environment for business and investment.

4.6.2 Retail Investor Involvement

Retail investors (RETAIL) was found to be significant and negatively related to oversubscription with a coefficient of -0.5322, as reflected in Table 4.6. This indicated that a "1" unit increase in RETAIL would lead to "-0.5322" times reduction in oversubscription. The finding was in line with Amihud *et al*. (2003), Chowdhry and Sherman (1996a), Easley and O'hara (2004), and Koh and Walter (1989) who supported the winner's curse hypothesis by Rock (1986). According to Rock (1986), uninformed or retail investors would usually receive a higher allocation of a "bad" IPO, without noticing that the IPO was overpriced, since IPOs with good prospects would already be taken up by informed investors, particularly institutional investors. Thus, shares with large allocations to retail investors become a curse to uninformed investors as these shares would generate negative returns since they are overpriced. Therefore, investors are unlikely to subscribe to an IPO that has large allocations for retail investors and hence, the oversubscription rate would be low.

On the other hand, the allocation to institutional investors (PRIVATE) was positively significant in influencing the rate of subscription. Rock (1986) suggested that informed investors are more likely to subscribe to an IPO if they feel that there is a higher probability that the IPO is underpriced. This is because they are well-versed about the quality of the IPOs as proposed in the winner's curse hypothesis by Rock (1986). The large proportion of institutional investors who subscribe to the IPO would subsequently attract uninformed investors' interest in a particular stock and increase the likelihood of oversubscription. Therefore, this study provides additional support to Rock's winner's curse theory.

4.6.3 Investors Sentiment

In general, when an IPO has high returns, it would boost investors' sentiment to subscribe. The result in Table 4.6 proves that investors' sentiment (DRETURN) positively and significantly influenced oversubscription, where a listing during high initial return period, i.e., when DRETURN=1, would lead to 8.7541 times increase in oversubscription. This finding was similar to those by Baker and Wurgler (2006), Bayley *et al*. (2006), and Low and Yong (2011), that is, investors would be interested to subscribe to an IPO when the returns are high on the first day of listing because it creates a good impression to market participants. Such enthusiasm would induce investors' subscription of an IPO and increase the probability of oversubscription. This result suggested that the issuers should list their offerings to coincide with periods of high investors' enthusiasm in order to exploit the "windows of opportunity" when markets are optimistic either due to past levels of underpricing or a positive economic environment. Therefore, the new issues would have a good chance to be oversubscribed.

4.6.4 Offer Size

In this study, offer size was measured using the natural logarithm of the gross proceeds of IPOs (natural log total number of shares issued *x* offer price). Pertaining to the size of the offering, the results showed a negative and significant relationship of -4.354 between offer size and IPO oversubscription, as shown in Table 4.6. The findings were consistent with Mohd-Rashid, Abdul-Rahim, Yong, and Mohd-Nor (2013), Mok and Hui (1998) and Yu and Tse (2006) the larger is the size of the offering, the larger is the number of shares available for subscription; consequently, the lower is the oversubscription of IPOs.

This result implied that the subscription decision is affected by the size of offering. Therefore, the finding suggested that the issuer with a large size of offering should select a reputable underwriter as this would certify the quality of the IPO (Carter, Dark, & Singh, 1998; Chowdhry & Nanda, 1996). In addition, firms with a large offering size should consider using a book-building mechanism instead of fixed-price mechanism. The book-building mechanism allows underwriters to adjust the issue size of the IPOs under certain circumstance, depending on the demand from investors. Thus, the book-building mechanism allows issuers and underwriters to extract information from investors before finalising the offering size and offering price.

4.6.5 Listing Board

Listing board was found to be negatively and significantly related to oversubscription. The coefficient of listing board showed a decrease of oversubscription by 19.8047 times if companies that offered the IPOs were listed on the Main Market of Bursa Malaysia.

This was consistent with past studies on the Malaysian market, such as by Abdul-Rahim and Yong (2010) and Taufil-Mohd (2007). The result was expected, since companies listed on the Main Market are large companies and have high offer prices which affect the demand from investors. However, companies listed on the ACE Market are small companies and have lower offer prices, which could attract investors. This is in line with Beatty and Welch (1996) who noted that small companies with a lower offer prices tend to attract more investors to subscribe to their IPOs. Therefore, firms with higher offer prices have lower demand as investors are compensated with lower initial returns for bearing such low risks.

Another explanation is that firms listed on the Main Market (large firms) have a proven track record and lower information asymmetry (Chen, Firth, & Kim, 2004). Thus, the issuers would not need to underprice their IPOs to attract investors. Meanwhile, information asymmetry is higher for firms listed on the ACE Market (small firms) as these firms are new and do not have a proven track record. Therefore, the issuers need to underprice their IPOs to attract investors. This finding was in line with Benveniste and Busaba (1997), and Chowdhry and Nanda (1996) who noted that large companies are associated with lower demand from investors. Thus, the listing board of an IPO does matter in explaining oversubscription.

4.6.6 Financial Crisis

Last but not least, the coefficient for financial crisis (DCRISIS) negatively and significantly influenced oversubscription, as shown in Table 4.6. During the financial

crisis, oversubscription was reduced by 17.67 times. This was because during the global financial crisis of 2008 and 2009, investors stayed away from IPOs due to the bearish market (Peters *et al.*, 2012; Purfield & Rosenberg, 2010). This was consistent with previous studies on IPO underpricing in the Malaysian market during the 1997 and 1998 financial crisis (Ahmad-Zaluki *et al*., 2011; Mitton, 2002; Taufil-Mohd, 2007). Given the likely downward pressure on the initial returns of IPOs in 2008, as shown in Figure 4.15, the crisis period or an economic downturn would not be the best time for investors to buy stocks. This was expected as investors are likely to be more selective when investing in IPOs due to low initial returns that reflect the poor economic conditions. In this study, most of the IPOs provided lower returns when markets have gone into a bearish phase in 2008 and 2009. Hence, many issuers hold off their intention to get listed due to the uncertainty in the stock market.

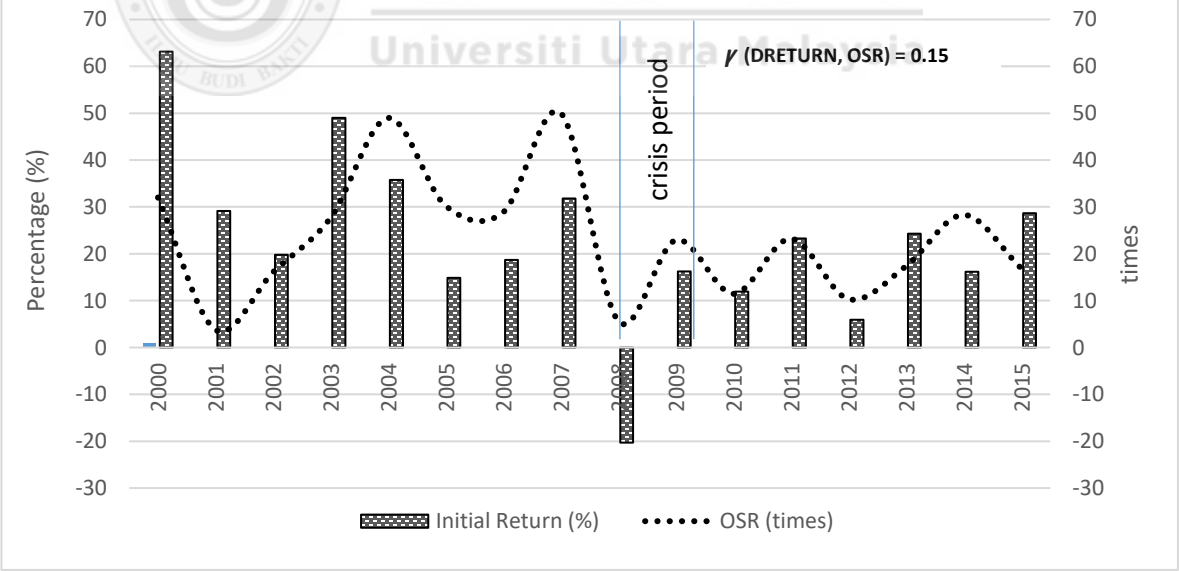

Figure 4.15
Mean initial return and oversubscription ratio of the IPOs from year 2000 to 2015.
Source: IPO Prospectus and Bursa Malaysia

4.7 Interaction Effect of Pricing Mechanism

As mentioned in Chapter One, Malaysian IPOs would use fixed-price as the pricing mechanism. However, throughout the data collection, it was found that IPOs in Malaysia also consisted of hybrid IPOs. A hybrid IPO is a combination of fixed-price and book-building as the pricing mechanism. Generally, a fixed-price mechanism would be used for retail investors while book-building mechanism would be used for institutional investors. In a hybrid IPO, the retail price is fixed while institutional price is determined by way of book-building. The final price for retail would be equal to the institutional price, but it would not exceed the retail price. In the event that the final price is less than the retail price, the difference would be refunded to retail investors. The sample size for hybrid IPOs was 30. Statistically, an analysis using this sample could be conducted to investigate the impact of pricing mechanism on oversubscription. Hence, the effectiveness of the hybrid IPO as another significant predictor of oversubscription could be addressed.

Since most large IPOs used a mixed mechanism, an interaction between offer size and the pricing mechanism was included in the analysis for robustness. The previous models were re-estimated by including a pricing mechanism variable (DMECHANISM) and an interaction variable between offer size and pricing mechanism (DMECHANISM *x* SIZE). DMECHANISM took a value of "1" if book-building mechanism was used in pricing the IPOs, and "0" if fixed-priced mechanism was used. The results of the re-estimated model are summarised in Table 4.7.

Table 4.7
The Estimation Results with Pricing Mechanism

Dependent variable is oversubscription ratio		
Independent Variables	The full model: limited interaction terms	
	Coefficient	t-statistic
GOP	0.0818	1.6630*
BEQ	1.1282	2.9994***
BUMI Δ	-13.5726	-2.9522***
DSHARIAH	5.5585	1.6892*
SHARIAH Δ	8.3341	2.1102**
CASH	-0.2617	-2.0833**
DEBT	-0.1519	-2.1451**
MKTCON	114.8857	2.5847**
RETAIL	-0.5552	-3.6562***
DRETURN	8.4404	2.9380***
SIZE	-5.6334	-2.6964***
DBOARD	-18.8567	-3.4970***
DCRISIS	-17.0309	-4.2212***
DMECHANISM	-76.5122	-2.1541**
DMECHANISM *x* SIZE	4.0315	2.0539**
CONSTANT	143.3523	4.0147***
R-squared	0.2522	
Adjusted R-squared	0.2238	
F-Statistics	8.8602***	
Probability	0	
Durbin-Watson	1.8389	
VIF range	1.3989 -8.7919	

Notes: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Oversubscription ratio (OSR) is the number of times the IPOs are oversubscribed. Growth opportunity (GOP) is the percentage of proceeds to growth. *Bumiputera* equity ownership (BEQ) is the total number of shares allocated to *Bumiputera* public investors. Revised *Bumiputera* equity requirement (BUMI Δ) is a dummy variable take value of 1 following new *Bumiputera* equity ruling from June 2009 and 0 otherwise. DSHARIAH is dummy that takes a value of 1 for *Shariah*-compliant IPOs and 0 otherwise. Revised *Shariah*-compliant status (SHARIAH Δ) is a dummy variable take value of 1 following new *Shariah* guidelines introduced in November 2013 and 0 otherwise.. Cash to asset (CASH) is the percentage of total cash to total assets. Debt to asset (DEBT) is the percentage of total liabilities to total assets. Market condition (MKTCON) is the weighted average returns of EMAS Index, three months prior to listing. Retail offering (RETAIL) is the allocation of shares to public investors. DRETURN is the dummy that takes a value of 1 if IPO is listed in a quarter in which equally weighted average initial returns of the quarter is above the median and 0 otherwise. LN (SIZE) is the natural logarithm of the total number of shares issued times the offer price. DBOARD refers to the listing board that takes a value of 1 if an IPO is listed in the Main Market and 0 if listed in the ACE Market. DCRISIS refers to the period of the global financial crisis that takes a value of 1 if an IPO is offered in the period 2008 to 2009 and 0 otherwise. DMECHANISME refers to the IPO pricing mechanism that takes a value of 1 if book-building mechanism is used in pricing the IPOs and 0 if fixed-priced mechanism is used.

The findings showed that DMECHANISM was negatively significant in explaining oversubscription ratio. Usually, IPOs under book-building pricing mechanism have lower underpricing. In such cases, investors would lower their demand for these IPOs as they require lower returns. However, the interaction term between pricing mechanism and offer size (DMECHANISM *x ln* SIZE) was significant and positively related to oversubscription at the five percent level. This implied that the oversubscription rate of IPOs was significantly higher for large firms if they were issued under a mixed mechanism instead of fixed-price mechanism, but mitigated by SIZE (-5.6334).

There are two reasons on why the interaction term had a positive coefficient. The first reason is the participation by cornerstone investors, who are usually well-known institutional investors or sovereign wealth funds, such as Khazanah Nasional Berhad and Temasek Holdings. Generally, these investors would agree in advance to purchase a large number of shares in an IPO issued by well-established firms (large firms), which would in turn contribute to the increase in the oversubscription rate of IPOs. The second reason is the offer price of the IPOs. As stated in Chapter One, the offer price of IPOs under book-building mechanism is determined using investor bids once the bidding has closed. The final offer price is based on the price range submitted by investors (institutional investors). Sometimes, the final price is less than the retail price. If this occurs, there are a lot more demand coming from investors. As a result, the oversubscription would increase. For issuers, the mixed mechanism is more efficient as IPO shares are valued at a fair price rather than a fixed-price or at a pre-determined price. Therefore, mixed mechanism would mitigate the underpricing problem faced by issuers. Since their IPO offer prices would be reasonably closer to market value. As a result, investors would

subscribe to the IPOs at a fair price and the issuers would receive fair compensation. In contrast, a fixed-price IPO is sometimes offered with a lower price, which is not determined by investor demand. This would attract a larger number of investors on the first day of listing. As a result, the share price often rises dramatically in the early day of listing causing a big gap between the offer price and the closing price, or a higher underpricing.

4.8 Chapter Summary

In summary, this chapter discusses the results of descriptive statistics, assumption of ordinary least square, multivariate regression analysis and additional analysis. The association between independent variables and oversubscription of Malaysian IPOs is analysed in the descriptive statistics based on the sample comprising 410 IPOs listed on Bursa Malaysia from January 2000 to December 2015. Further, the comparative analysis between high and low mean values of IPOs is discussed. Several assumptions of ordinary least square have been tested such as normality of data, absence of multicollinearity, absence of heteroscedasticity, absence of autocorrelation, linearity and outliers. Once the reliability of the regression models is accepted, the hypotheses are tested using multivariate regression analysis. The cross-sectional multiple regression analysis results showed that growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash and debt have a significant relationships at least at the 10 percent level with oversubscription except for pricing mechanism as shown in Table 4.8. Finally, the effect of pricing mechanism are undertaken to test for the robustness of the results.

Table 4.8

Summary of the Results Finding Between Main Variables and Oversubscription

Variable	Result Finding	Theory Supported	Hypothesis Prediction	Support Hypothesis
Growth Opportunity	+	Signalling	+	Yes
Bumiputera Equity Ownership	+	Signalling	+	Yes
Revised of *Bumiputera* Regulatory	-	Signalling	-	Yes
Shariah-Compliant Status	+	Signalling	+	Yes
Revised of Shariah-Compliant	+	Signalling	+	Yes
Cash	-	Agency	+	No
Debt	-	Agency	-	Yes
Pricing Mechanism	+	Signalling	-	No
Market Condition	+	Signalling	+	Yes
Retail Investor Involvement	-	Winner curse	-	Yes
Investors Sentiment	+	Signalling	+	Yes
Offer Size	-	Signalling	-	Yes
Listing Board	-	Signalling	-	Yes
Financial Crisis	-	Signalling	-	Yes

CHAPTER FIVE

SUMMARY AND CONCLUSION

5.1 Introduction

This chapter begins with the summary and conclusion of the findings described in the earlier chapters. The explanation will be kept brief since a thorough discussion of the findings was already provided in Chapter Four. This is followed by highlighting implications of the findings to market regulators and policy makers, issuers, investors, and body of knowledge concerning Malaysian IPOs. Next, the limitations of this study are outlined, ending with several suggestions for future studies.

5.2 Summary and Conclusion

The principal aim of this study was to examine the oversubscription phenomenon of Malaysian IPOs. Oversubscription, which could be interpreted as investors' demand, is an essential element in the success of an IPO. Literature search showed that there is only one study by Low and Yong (2011) that focused on demand for IPOs. They focused on information related to a firm's actions during the IPO process, such as investor enthusiasm, IPO volume, opportunity cost of funds, and offer price. This study extended their analysis by introducing new variables. This study postulated that there are several factors affecting oversubscription of IPOs in Malaysia, including *Bumiputera* equity requirement and *Shariah*-compliant status, which are distinct features in the Malaysian market. According to Loughran *et al*. (1994) and Taufil-Mohd (2007), the various levels of oversubscription observed in different countries have indicated that there might be

certain distinct features in each country which affect the performance of IPOs differently. Given the institutional differences in Malaysia, they might influence the oversubscription phenomenon. In addition, this study also took into consideration pre-listing information that is available in the prospectus, since it may affect oversubscription. According to Low and Yong (2011), pre-listing information in the prospectus becomes important especially in countries that employ a fixed-price mechanism. This study proposed eight pre-listing information, namely growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* equity requirement, *Shariah*-compliant status, revised *Shariah*-compliant guidelines, cash, debt and pricing mechanism, all of which theoretically have the potential to influence IPO demand, but have not been empirically examined by other researchers. The focus on such variables was motivated by the fact that the Malaysian market has different institutional, legal, and cultural settings which may influence the oversubscription phenomenon. Six control variables were included in the analysis which could have significant impact on oversubscription. These variables were market conditions, retail investor involvement, offer size, investor sentiment, listing board, and fiscal crisis.

The underlying theories used to support the arguments in determining oversubscription of IPOs include signalling (Leland & Pyle, 1977), agency cost (Jensen & Meckling, 1976), and winner's curse (Rock, 1986). Nevertheless, signalling is the main theory relied upon in this study when formulating the hypotheses. The signalling model, which was formalised by Allen and Faulhaber (1989), Grinblatt and Hwang (1989), and Welch (1989), postulates that firms of good quality would receive excellent response from investors for their respective IPOs. In all these models, underpricing is used as a signal

that the firms are of high quality whereby underpriced IPOs firms are considered better firms and would receive strong demand. Meanwhile, in order to achieve the objectives of this study, eight hypotheses were developed. The links between objectives and hypotheses of study are as follows:

Table 5.1
Links between Objectives and Hypotheses of Study

Objectives	**Hypothesis**
To examine the impact of growth opportunity, *Bumiputera* equity ownership and *Shariah*-compliant status on oversubscription of IPOs.	H1: Growth opportunity has a positive influence on oversubscription of IPOs. H2: *Bumiputera* equity ownership has a positive influence on oversubscription of IPOs. H4: *Shariah*-compliant status has a positive influence on oversubscription of IPOs.
To investigate the effects of the changes in *Bumiputera* equity requirement and *Shariah*-compliance status on oversubscription of IPOs.	H3: The change in the *Bumiputera* equity requirement in June 2009, has a negative impact on oversubscription of the respective IPOs.
	H5: The change in the *Shariah*-compliance status guidelines in November 2013, has a positive impact on oversubscription of the respective IPOs.
To examine the impact of the cash and debt ratio on oversubscription of IPOs.	H6: Cash ratio has positive impact on oversubscription of IPOs. H7: Debt ratio has a negative impact on oversubscription of IPOs.
To examine the impact of pricing mechanism including interaction effect on oversubscription of IPOs.	H8: Pricing mechanism has a negative impact on oversubscription of IPOs.

A final set of 410 IPOs listed on Bursa Malaysia from January 2000 to December 2015 was used to achieve the above objectives. Financial companies, which include banks, financial services, insurance companies, and real-estate investment trusts (REITS), were excluded from the sample due to the differences in the presentation of their financial statements. Lastly, the sample of this study was improved by excluding outliers, which were identified through the value of studentized residuals (Kleinbaum *et al*., 2013; Ruppert, 2004).

The descriptive results revealed that the average oversubscription is 27.52 times and there is a huge gap between minimum (-0.89 times) and maximum (229.20 times) oversubscriptions. The enormous difference between the minimum and maximum oversubscriptions reflects that the demand for IPO in Malaysia varies greatly.

Further inspection was performed with the IPOs segregated to high and low investor groups based on their demands. The analysis demonstrated the level of oversubscription rate, which differs substantially across high- and low-investor demand groups based on mean values. In the case of high-investor demand group, the oversubscription was 47.98 times, while for the low-investor demand group, the average was only 5.13 times. The observed mean differences for oversubscription ratio, growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulations, *Shariah*-compliant status, debt, market condition, retail investor involvement, initial return, offer size, listing board, and financial crisis between high and low demand groups were all significant, at the very least the 5 percent level, except for cash and revised *Shariah*-compliance.

Several assumptions of ordinary least squares were tested, such as ensuring the normality of data, absence of multicollinearity, absence of autocorrelation, absence of heteroscedasticity, and linearity. All of these are important, before the hypotheses could be tested, to ensure that a robust analysis could be performed. The Jarque-Bera test statistics was used to examine the normality of data distribution and to ensure the robustness of the findings. Based on this normality test, as shown in Figure 4.15, it showed that the residual was not normally distributed. Based on the central limit theorem, non-normality would not be a problem. Meanwhile, the correlation matrix for all variables in

Table 4.3 showed that most of the independent variables had a correlation of less than 0.6, except for BEQ and RETAIL which showed a significant positive relationship of 0.84. Based on the variance inflation factors (VIF) that ranged from 1.23 to 5.52, it was clear that multicollinearity was not a problem in this study (Kleinbaum *et al*., 2013). Further, the reported coefficients were generated using the Newey-West procedure to correct for the problem of autocorrelation.

Once the reliability of the regression models could be accepted, the hypotheses were tested by using multivariate regression analysis. The cross-sectional multiple regression analysis results showed that growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash and debt have a significant relationships at least at the 10 percent level with oversubscription except for pricing mechanism. It was observed that the results support the hypothesis except for cash and pricing mechanism. The negative significant relationship between cash and oversubscription is in line with agency theory which asserts that the management may have self-interest that motivates them to inefficiently facilitate free cash flows (Jensen, 1986). On the other hand, for the pricing mechanism, the insignificant positive result may be due to the linearity with offer size of IPOs because most IPOs issued under mixed mechanism are large IPO size. Overall, the adjusted R^2 showed that the independent variables in the model could explain 23 percent of the variations in IPO oversubscription ratio.

Finally, the interaction effect of pricing mechanism was investigated to understand the real impact of the hybrid IPOs on oversubscription. Since only large IPOs were used in

the book-building and fixed-price mechanisms, an interaction between offer size and pricing mechanism was also included in the analysis (*ln* SIZE *x* DMECHANISM). The results showed that the influence of pricing mechanism on oversubscription depends on the level of offer size. In other words, the demand of IPOs would be significantly higher for the large firms when issued under mixed mechanisms, but this is mitigated by the offer size of IPOs. Overall, the signs for coefficients of interest were comparable to the original model.

5.3 Implications of the Study

This section discusses the implications of the findings on market regulators and policy makers, issuing companies, investors, and to the current body of knowledge.

5.3.1 Implication to Market Regulators and Policy Makers

The reduction of *Bumiputera* equity ownership from 30 percent to 12.5 percent by the Malaysian government would have adverse impact on investor demand, especially for *Bumiputera*. However, as reflected by the government's efforts to make the Malaysian market more competitive, the revision of *Bumiputera* equity requirement in June 2009 would likely attract more investors (*Bumiputera* and non-*Bumiputera*) to participate in the Bursa Malaysia. It is believed that the competition among investors would benefit Malaysia IPOs market. This has been proven in 2012 when Malaysia was the fifth largest IPO issuing destination in the world (Bursa Malaysia, 2012). Furthermore, Malaysia was rated one of the most attractive investment destinations in Asia in 2013, and it obtained funding totalling USD7,046.90 million through IPOs (Bursa Malaysia, 2013). This shows

that the IPO market in Malaysia is attractive and robust. Therefore, this is a good policy in attracting the investors, investing in our country. Thus, it is believed that the new equity liberalisation initiatives by the government would make the market more attractive, competitive, and open.

As at the end of December 2015, about 90 percent of the IPOs listed in Malaysia were issued by *Shariah*-compliant companies. Since companies under *Shariah*-compliant status have met the requirement of *Shariah* principles, they could attract the interests of both Muslim and non-Muslim investors. In the meantime, the revision of *Shariah*-compliant status guidelines, which has been aligned to international standards, would likely attract foreign investors particularly from the Middle East. Such initiative could contribute toward Malaysia's aspiration of becoming a global Islamic hub for Islamic financial products and services. This is in line with the objectives of the Financial Sector Blueprint 2011-2020 in positioning Malaysia as Asia's central hub in Islamic finance. Therefore, this is good policy for investors investing in firms engaged in halal business. Thus, it is believed that *Shariah*-compliant status which is structured in accordance to *Shariah* principles could provide the best opportunities to increase the Islamic fund. Hereby the SC's should maintain or enhance this policy in order to boost Malaysia equity market.

5.3.2 Implication to Issuers

The main finding of this study showed that evidences such as growth opportunity, *Bumiputera* equity ownership, *Shariah*-compliant status, cash, debt and pricing mechanism are significant indicators that influence oversubscription. Information

regarding these indicators that can influence oversubscription is available in the prospectus. Therefore, issuers must take these indicators into consideration to assure good early performance of their issuance.

The findings of this study provided useful insights to the issuer to ensure greater efficiency in managing fixed-price IPOs. This study showed that the utilisation of proceeds for investment purposes has a positive influence on investors in subscribing to the IPOs. In addition, firms that decide to go public must reduce their cash. Therefore, investors or future shareholders would be interested to subscribe to the offerings. Meanwhile, firms also need to reduce or settle their debts before going public as investors will stay away from firms that have high debt. Thus, this study supported that information such as growth opportunity, cash, and debt are key factors for consideration to issuers as investors would make informed decisions regarding their investments.

Furthermore, this study also offered a practical understanding to issuers on factors that should be considered, not only to ensure that the issues are fully subscribed, but also to ensure that the initial performance of their shares is optimised. According to Low and Yong (2011), IPOs with higher subscriptions are associated with higher underpricing. This argument might be due to the unsuccessful investors in the bidding process will participate in the open market on the day of listing and would increase the share price. Therefore, the issuer can increase the subscription rate by influencing the impression of prospective investors. In this case, managing the impressions of investors, such as underprice IPOs, would be likely to be the strategy adopted by issuers.

Finally, the findings from the interaction between offer size and mixed mechanism showed that the subscription rate would be higher for large sized IPOs when they are issue under mixed mechanism instead of fixed-price mechanism. This result informs that mixed mechanism is favoured by large sized issuers since their IPOs could sell at a reasonable value to the market and would receive fair compensation, as compared to fixed-price mechanism. This is important as this mechanism or approach is likely to lead to a better price for the issuer. Therefore, mixed mechanism would be a better option for issuers, especially large firms as it can provide efficient pricing in valuing their IPOs.

5.3.3 Implication to Investors

In general, the findings of this study can be expected to assist investors regarding the kind of information which investors should be concerned with when evaluating IPOs and making decisions concerning investment in IPOs. Specifically, this study delivered evidence of factors that significantly influence oversubscription. Therefore, investors can give thoughtful consideration to the factors that significantly explain oversubscription when they evaluate any new share issues or IPOs. The information related to these factors (growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt, pricing mechanism, market condition, retail investors, investor sentiment, offer size, listing board, and financial crisis) is important in explaining oversubscription and available in the prospectus. Therefore, this finding can be a reliable guide for investors to reduce the cost of being trapped in bad IPOs prospect which resulting in low subscription rates.

Next, investors might be aware of the importance of regulations, such as *Bumiputera* equity requirement and *Shariah*-compliant status, which influences the Malaysian IPO market. For *Bumiputera* equity requirement, when the government relaxed the requirements from 30 percent to 12.5 percent, the issuers and underwriters do not need to under-price their IPOs to attract *Bumiputera* investors. Less underpricing would mean lower return which might reduce subscription rates. Meanwhile, when the SAC revised the *Shariah*-compliant status, the IPOs would more likely have greater demand from the market. This is because, the shares have fulfilled the strict requirements set by the SAC, which is aligned with international standards. Therefore, understanding these regulations would assist investors in planning and executing a more informed decision regarding their investment in IPOs.

5.3.4 Implication to Body of Knowledge

This study opens the door for future studies in the area of oversubscription market, which is still new for Malaysian IPOs. It has been noted that currently, only Low and Yong (2011) had examined the factors which explain the oversubscription phenomenon in the Malaysian market. However, the determinants of oversubscription ratio were very much focused on information related to a firm's actions during the IPO process, such as investor enthusiasm, IPO volume, opportunity cost of funds, and offer price. This study enriches the existing literature on studies of oversubscription and its determinants by establishing the relationship between growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* equity requirement, *Shariah*-compliant status, revised *Shariah*-compliant status, cash, debt, and pricing mechanism.

As mentioned previously, *Bumiputera* equity requirement and *Shariah*-compliant status are distinct features in the Malaysian IPO market which had been imposed since 1976 and 1999, respectively. These distinct features might affect the performance of IPOs (Loughran *et al*., 1994; Taufil-Mohd, 2007). According to Ariff and Shamsher (1999), government interventions might be a possible reason of the high level of underpricing in Malaysian IPOs. Specifically, this study showed that in the case of the Malaysian IPO market, the *Bumiputera* equity requirement and *Shariah*-compliant status (both were revised in 2009 and 2013, respectively) are able to explain oversubscription significantly, and consistently support the findings in the earlier studies by Ariff and Shamsher (1999), Loughran *et al*. (1994), and Taufil-Mohd (2007).

Furthermore, this study adds value to the current body of literature when it provided a new variable. Namely involvement of retail investors, or also known as uninformed investors. Even though the involvement of institutional investors is well known in literature and has received wide acceptance in prior research, the contribution of retail investors in the Malaysian IPO market, Bursa Malaysia is hardly discussed. The importance of the role played by these investors has been highlighted in the Entry Point Project 1 (EPP1) for Bursa Malaysia to engage retail investors towards revitalising Malaysian equity market. This study demonstrated results which consistently show that if the IPO has large allocation to retail investors or uninformed investors, there is a strong tendency that lower oversubscription could be expected due to the overpricing of IPOs. This is supported by Rock (1986) in the winner's curse theory which states that shares with a larger allocation to retail investors would become a curse to uninformed investors, and these shares would generate negative returns as they are overpriced. In contrast, large allocation to

institutional investors or informed investors would increase the likelihood of oversubscription. This is because they are well-versed about the quality of the IPOs and this scenario seems consistent with the winner's curse hypothesis proposed by Rock (1986). The evidence suggested that investors would not subscribe to an IPO that has large allocations for retail investors.

Finally, this study also offers another important piece of evidence in the current body literature of IPOs regarding the effect of mix mechanism in influencing oversubscription. Even though fixed price mechanism is mostly commonly used in Malaysia market; however, there are few IPOs issued under mixed mechanism, which is still untested in influencing the IPOs in Malaysia. However, the result shows that mixed mechanism does not influence oversubscription. Further analysis has been carried out to understand the real impact of the mix mechanism on IPO oversubscription. Since only large IPOs were used in the mix mechanisms, an interaction between offer size and pricing mechanism was also included in the analysis (*ln* SIZE *x* DMECHANISM). The results showed that the influence of pricing mechanism on oversubscription depended on the level of offer size. In other words, the demand of IPOs would be significantly higher for the large firms when IPOs were issued under mixed mechanisms, but this was mitigated by the offer size of IPOs.

5.4 Limitations of the Study

Despite careful attempts that have been taken in producing credible results for this study, it is important to acknowledge some limitations that could not be avoided. The first

limitation of this study is related to the measurement of growth opportunity (GOP). In this study, GOP was defined as the percentage of proceeds utilised for investment purposes over total proceeds. Since the measurement proposed in this study is new to the IPO literature, its validity may need to be further verified by examining its relationship with other measurements that represent growth opportunity. The use of other measurements such as sales growth (Bartov, Mohanram, & Seethamraju, 2002), book value of equity to market value of equity (BV/MV) (Kim & Ritter, 1999), and total growth premium[VIII] (Chung *et al*., 2005) to represent growth opportunity could be used to verify the robustness of the results of this study.

The second limitation lies in the *Bumiputera* equity ownership data. Specifically, the allocation of shares to *Bumiputera* investors is only imposed on companies that desire to list their IPOs in the Main Market (previously Main Board and Second Board) only. For companies that are listed in the ACE Market (previously MESDAQ), they are given five years after being listed to allocate their shares to *Bumiputera* investors or within one year after achieving the profit required for a listing on the Main Market, whichever comes earlier. Due to a longer timeframe to comply with this requirement, the data of *Bumiputera* equity ownership (BEQ) are low for most companies listed in the ACE Market. This would completely reduce the average share allocation of *Bumiputera* equity ownership of Malaysian IPOs (combination of Main Market and ACE market).

[VIII] The growth premium is reported as dilution to IPO investors in the prospectus. To make this measure comparable across IPOs, Chung *et. al* (2005) measure growth premium as a percentage of the offer price (GP/P_0).

The third limitation is the short span of IPOs oversubscription evaluation, specifically for the revised *Bumiputera* equity requirement in July 2009 and *Shariah*-compliant status in November 2013. The post-IPO period scrutinised after the revised *Bumiputera* equity requirement spanned six and half years, meanwhile for the *Shariah*-compliant status, only 25 months were covered, which is two years and one month. These might be an inadequate length of time to see if the changes of the requirements affect the oversubscription of IPO. Thus, the shorter timeframe for the revised *Bumiputera* equity requirement and *Shariah*-compliant status may reduce the ability of this study to capture the oversubscription of IPOs in this study.

The fourth limitation is related to the method. In this study, quantitative approach was applied in examining the factors affecting oversubscription. This is a common approach in IPOs research. By only focusing on quantitative approach, it does not provide a comprehensive view of oversubscription.

Finally, the results of this study is constrained by a limited number of variables such as growth opportunity, *Bumiputera* equity ownership, revised *Bumiputera* regulation, *Shariah*-compliant status, revised *Shariah* regulation, cash, debt and pricing mechanism as well as the six control variables to understand factors affecting oversubscription of IPOs. Thus, limited number of variables in this study has produced around 23 percent adjusted R-squared values only in the regression result.

5.5 Recommendation for Future Research

This study was designed to be thorough in examining oversubscription of IPOs on the Bursa Malaysia. However, there is always room to improve some of the issues covered. Several recommendations are forwarded for future research initiated by the discussion on limitations of this study.

The first recommendation relates to the use different measurements to represent growth opportunity (GOP), such as sales growth, book to market ratio, and total growth premium. It is important to re-examine the consistency of those measures with the measurement used in this study. If other measurement variables are found to be inconsistent, the present GOP measurement may be applied in future studies because of the inherent advantage over other measures due to the availability of information in the prospectus.

The second suggestion for future research is related to *Bumiputera* equity requirement of Main Market where companies are compulsory to fulfil this requirement. Future studies should focus more on *Bumiputera* equity ownership of the companies listed in the Main Market. Thus, it would be good to conduct more analysis in future research in order to obtain a better inference regarding oversubscription, based on *Bumiputera* equity ownership in the Main Market and their implications, particularly to the Malaysian IPO market.

The third suggestion for future research is to examine the impact of the revised *Bumiputera* equity requirement in June 2009 and *Shariah*-compliant status in November

2013 on oversubscription for a longer period. This is to overcome the limitation of this study where the shorter time span provides a smaller sample size. It is suggested that a study needs to be conducted in the future when the database has grown larger. Therefore, a bigger sample size would be available to capture the real impact of the revised regulation on oversubscription.

The fourth suggestion for future research is related to the limitation on using quantitative approach. It is suggested that to get a more comprehensive view of factors affecting oversubscription, a triangulation combining the qualitative and quantitative approach would probably provide a better understanding in this issue.

Finally, the regression result in this study consistently reports significant intercept and adjusted R-squared values produced around 23 percent. The results suggest that the estimated model does not sufficiently explain all the variations in oversubscription in the Malaysian IPO market. In other words, there are other factors that should be considered by future research when examining the oversubscription anomaly. Some of the factors that could be considered are lock-up ratio, shareholder retention, underwriter reputation and venture capital.

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Appendix A: Public Offerings and Listings on Kuala Lumpur Stock Exchange (KLSE)

6.08 At least 30% of the securities allocated (over and above the securities issued to/reserved for Bumiputera investors to comply with the NDP/NVP requirements) should, to the extent possible, be allocated to Bumiputera investors, under the following circumstances:-

(a) Under an offering to the general public; and

(b) Under a placement exercise, excluding all placement exercises to fulfil the NDP/NVP requirements imposed by any other authorities.

Source: Policies and Guidelines on Issue/Offer of Securities (2003)

Appendix B: Bumiputera Equity Year 2010

PM: Ekuiti Bumiputera Cecah 23.09 peratus 2010

23 APRIL 2012

KUALA LUMPUR - Perdana Menteri Datuk Seri Najib Tun Razak hari ini mengumumkan peningkatan pemilikan ekuiti bumiputera kepada 23.09 peratus bernilai RM167.7 bilion pada 2010 berbanding dengan tahun 2008 pada 21.9 peratus bernilai RM127.4 bilion.

Selain itu, beliau turut mengumumkan kolaborasi Unit Peneraju Agenda Bumiputera (TERAJU) dengan dua syarikat induk di bawah program TeraS iaitu Ahmad Zaki Resources Bhd dan MITC Ancasa Hotel (M) Sdn Bhd, yang bakal melibatkan pemberian kontrak pembekalan bernilai RM500 juta kepada syarikat-syarikat bumiputera dalam masa dua tahun.

Najib, yang juga Menteri Kewangan berkata peningkatan ekuiti tersebut adalah berdasarkan pelaksanaan program untuk memperkasakan agenda bumiputera sebagai agenda utama negara yang dilaksanakan kerajaan. Beliau berkata dasar itu telah dapat mengembangkan peranan agensi-agensi Amanah Bumiputera dan juga badan-badan yang layak diiktiraf sebagai bumiputera seperti Lembaga Tabung Haji, Lembaga Tabung Angkatan Tentera (LTAT) dan juga kumpulan Permodalan Nasional Bhd (PNB).

"Ini semua telah menambah kepada ekuiti tambahan kepada bumiputera dengan peningkatan begitu baik sekali, kita juga melihat kemampuan syarikat-syarikat bumiputera kian bertambah dan mereka juga ada menyumbang kepada peningkatan peratusan syarikat bumiputera," katanya kepada pemberita selepas mempengerusikan mesyuarat Majlis Tindakan Agenda Bumiputera yang berlangsung selama kira-kira dua jam di sini hari ini.

Mengulas mengenai keyakinan untuk mencapai sasaran pemilikan ekuiti bumiputera sebanyak 30 peratus pada tahun 2020, Najib berkata ia tertakluk kepada beberapa faktor termasuk suasana dan iklim ekonomi dalam dan luar negara. "Mengikut analisa kita, kalau ekonomi boleh berkembang seperti setahun dua kebelakangan ini dan jika kita dapat meneruskan momentum ini, ada harapan besar, Insya-Allah, matlamat 30 peratus itu dapat dicapai menjelang 2020," kata perdana menteri.

Peningkatan pemilikan ekuiti pada 2010 adalah berasaskan keseluruhan ekuiti yang berjumlah RM726.4 bilion pada 2010 berbanding RM581.8 bilion pada 2008. Najib berkata pemilikan ekuiti bumiputera itu termasuk pemilikan individu-individu, Institusi Kepentingan Bumiputera seperti Lembaga Tabung Haji dan LTAT dan Agensi Amanah (yang diberi mandat oleh kerajaan) seperti PNB, Perbadanan Usahawan Nasional Bhd, Majlis Amanah Rakyat (MARA) dan Perbadanan Kemajuan Ekonomi Negeri (PKEN).

Di bawah program TeraS, perdana menteri berkata sebanyak 130 syarikat bumiputera telah dikenalpasti dan kolaborasi TERAJU, Ahmad Zaki dan MITC Ancasa di bawah program itu, bakal memberi lebih banyak peluang perniagaan kepada syarikat bumiputera yang lebih kecil ke arah menjadi juara korporat bumiputera pada masa hadapan.- Bernama

Source: http://www.sinarharian.com.my/bisnes/pm-ekuiti-bumiputera-cecah-23-09-peratus-2010-1.42430

Appendix C: Bumiputera Equity Requirements for Public Listed Companies

Frequently-Asked Questions on Bumiputera Equity Requirements for Public Listed Companies

(Measures announced by the Prime Minister of Malaysia, YAB Dato' Sri Mohd Najib bin Tun Abdul Razak at Invest Malaysia, 30 June 2009)

General

1. **What proposals would be considered by the SC under the Bumiputera equity requirement?** The proposals that will be considered by the SC under the Bumiputera equity requirement are those proposals involving listing of corporations, reverse take-over (RTO) and transfer of listing.

Updated: 1 November 2012

- Listings of real estate investment trusts or business trusts on Bursa Malaysia Securities Berhad (Bursa Securities) are required to be submitted under the Bumiputera equity requirement.
- Equity conditions would not be imposed for:

a. Listing of a corporation which does not involve an offer of securities to the general public through a balloting process whereby a listed corporation intends to undertake a restricted offer for sale to its shareholders or distribution in specie of the securities of the corporation for which listing is sought;
b. Listing or acquisitions/mergers of a corporation which has Bumiputera shareholding of more than 50% equity interest before and after the proposal;
c. Acquisitions/mergers of listed corporations where the relevant listed corporations have previously complied with the Bumiputera equity condition imposed pursuant to the listing; and
d. Acquisitions/mergers which do not result in a change in the ultimate shareholders and their interests in the relevant listed corporations.

2. When will the policy take effect?

The policy will take effect immediately.

3. Do corporations need to comply with any Bumiputera equity requirement imposed by the relevant Ministries as part of their licensing conditions?

Yes, where relevant, corporations must obtain sector regulator's approval prior to submitting any proposals to the SC.

IPO

4. What is the Bumiputera equity requirement for corporations seeking listing on the Main Market?

Corporations seeking listing on the Main Market must allocate at least 12.5% of their enlarged issued and paid-up share capital to Bumiputera investors.Currently, all corporations seeking listing must meet the 25% public spread requirement under the Bursa Malaysia Listing Rules.

Corporations with Malaysian-based operations seeking listing on the Main Market are required to allocate 50% of the public spread requirement to Bumiputera investors at the point of listing. This includes the portion made available for subscription via balloting, 50% of which are to be made available to retail Bumiputera investors. Hence, the Bumiputera equity requirements will be subsumed under the public spread requirements.

Corporations with Malaysian-based operations are defined as companies deriving more than 50% of their profits after tax from operations based in Malaysia.

Updated: 1 November 2012

- A Special Purpose Acquisition Company or "SPAC" is required to allocate at least 12.5% of its enlarged issued and paid-up share capital to Bumiputera investors to be recognised by Ministry of International Trade and Industry (MITI) or Ministry of Finance (MoF) (if a licensed financial institution) within one year after completion of the qualifying acquisition.

- Completion of the qualifying acquisition means the point of time whereupon all conditions precedent set out in the sale and purchase agreement governing the qualifying acquisition have been fulfilled.

5. How do corporations comply with the Bumiputera equity requirement?

The 25% public spread requirement is generally fulfilled by corporations in the following manner:-

i. Corporations are expected to make available up to 5% for subscription by the general public via the balloting process; and

ii. The balance of up to 20% can be placed out to non-substantial shareholders i.e. those owning less than 5% each.

Under the policy, corporations must apply to MITI, or to MOF (if licensed financial institutions) for the allocation of up to the 50% of the public spread requirement shares to MITI or MOF recognised Bumiputera investors.

When the corporation offers up to 5% of its issued capital for subscription via the balloting process, 50% of these shares must be offered to Bumiputera public.

6. What if the Bumiputera allocation is not fully subscribed?

In the event that MITI or MOF approved Bumiputera investors take up less than the 10% of the shares offered to them, the balance of the shares that are unallocated will be made available for subscription by the Bumiputera general public in addition to the mandatory requirement under the IPO balloting process. Say only 8% of the shares offered are taken up by MITI and MOF approved Bumiputera investors, the remaining 2% of the shares will be added to the balloting portion, thus making the total available for subscription by the Bumiputera public to be 4.5%.

The corporation will be deemed to have complied with the Bumiputera equity requirement once it has completed this process.

Updated: 1 November 2012

- The corporation may reallocate any unsubscribed MITI or MoF shares to institutional investors before making the shares available to the Bumiputera general public.

7. If a corporation has existing Bumiputera shareholders, can the Bumiputera shareholders be recognised to fulfill the Bumiputera equity requirement?

Yes, subject to recognition by MITI /MOF and only if the Bumiputera shareholder is not a substantial shareholder i.e. holds less than 5% of the issued and paid-up share capital.

Example:
Existing Bumiputera shareholders: 8%, each holding less than 5%
Bumiputera equity requirement to be fulfilled: 12.5% – 8% = 4.5%

8. What if the corporations have met with the 12.5% Bumiputera equity requirement, do they still need to offer 50% of the shares under the balloted public offer portion to Bumiputera investors?

Whenever a corporation undertakes a public balloting exercise, it must make available up to 50% for subscription by Bumiputera public.

9. Under the Bumiputera equity requirement, does that mean the Bumiputera shareholding in a corporation is restricted to 12.5%?

The 12.5% is the prescribed minimum limit. Of course the Bumiputera shareholding can be higher. For example, in the situation where 20% of the shares are held by existing Bumiputera investors, with the 12.5% Bumiputera public spread requirement, this will potentially bring the total Bumiputera shareholding to 32.5%.

10. What is the Bumiputera equity requirement for corporations seeking listing on the ACE Market?

For listing on the ACE Market, companies are required to allocate 12.5% of their enlarged issued and paid-up share capital to MITI-recognised Bumiputera investors within 1 year after achieving the profit record required for a listing on the Main Market, or 5 years after being listed on ACE Market, whichever is the earlier.

11. What should a corporation listed on the ACE Market do to comply with the Bumiputera equity condition after achieving the profit track record or after being listed for 5 years?

For the purpose of complying with the equity condition imposed, the corporation needs to submit to the SC on its proposal to comply with the Bumiputera equity condition within six (6) months from the trigger date.

12. Does the Bumiputera equity requirement apply to all corporations seeking listing?

The equity requirement only applies to corporations with Malaysian-based operations seeking listing. Corporations with MSC-status, BioNexus-status and corporations with predominantly foreign-based operations are exempted from the Bumiputera equity requirement.

Although the Bumiputera equity requirement does not apply to these corporations, they are, however, required to notify the SC.

Updated: 1 November 2012

- The following proposals are exempted from the Bumiputera equity requirement:

a. Any listing of an MSC-status/BioNexus-status corporation or a corporation with a subsidiary carrying MSC/BioNexus-status which is a major contributor (more than 50%) to the group's profitability, business or operations for the most recent financial year;

b. Any acquisition of an MSC/BioNexus-status corporation which results in a significant change in the business direction or policy of a listed corporation;
c. Any listing of a corporation with predominantly foreign-based operations. The determination for a corporation with predominantly foreign-based operations is based on the profit contribution from domestic and foreign operations of the group for the past year, in which the profits after tax derived from the foreign-based operations are higher than the Malaysian-based operations i.e. more than 50%;
d. Any acquisition of a corporation with predominantly foreign-based operations which results in a significant change in the business direction or policy of a listed corporation; and
e. Any listing of an exchange-traded fund or a closed-end fund.

Should these corporations undertake subsequent proposals involving transfer of listing status from the ACE Market to the Main Market or acquisition which results in a significant change in the business direction or policy of the listed corporation, the corporations must submit such applications to the SC and the SC will reassess to determine if such proposals are still exempted.

Subsequent Fund Raising/Corporate Exercise

13. Are public listed corporations (PLCs) required to make a submission to the SC for subsequent fund raising exercises involving placement of shares?

No. However, where a proposed placement results in the entry of one or more new controlling shareholders of the corporation, a submission must be made to the SC. For issuance of shares which results in the entry of new controlling shareholders, the revised Bumiputera equity condition will be imposed. This is because the entry of new controlling shareholders through a reverse take-over or backdoor listing of assets is treated like an IPO and requires the corporation to meet the IPO guidelines including the Bumiputera equity condition.

14. What are the Bumiputera equity conditions to be imposed on PLCs in the case of RTO/ acquisitions which results in a significant change in the business direction or policy?

Updated: 1 November 2012

- The corporation is required to allocate 12.5% of its enlarged issued and paid-up share capital to Bumiputera investors to be recognised by MITI or MoF (if a licensed financial institution) within one year after registering a profit or three years after the implementation of the proposal, whichever is the earlier.

15. What are the Bumiputera equity conditions to be imposed on PLCs in the case of transfer of listing?

In the case of a transfer of listing, the PLC is required to comply with the 12.5% Bumiputera equity requirement at the point of transfer.

Source: http://www.sc.com.my/bumiputera-equity-requirements-for-public-listed-companies/

Appendix D: Revised Shariah Screening Methodology

Frequently-Asked Questions on Revised Shariah Screening Methodology

1. Why has the Securities Commission Malaysia's (SC) Shariah Advisory Council (SAC) revised the Shariah screening methodology for companies listed and to be listed on Bursa Malaysia?

In 1995, the SC's SAC established the methodology to undertake Shariah screening process for listed companies. The methodology comprises quantitative and qualitative assessments. In view of the current development and sophistication of the Islamic finance industry, the screening methodology has now been revised by adopting a two-tier approach to the quantitative assessment which applies the business activity benchmarks and the newly-introduced financial ratio benchmarks while at the same time maintaining the qualitative assessment. This revision is in line with the SC's initiatives to further build scale in the Shariah-compliant equity and investment management segments as well as expand the Islamic capital market's (ICM) international reach, as outlined in the Capital Market Masterplan 2.

2. What are the changes in the Shariah screening methodology?

The changes are as follows:

Quantitative Assessment	**Revised Shariah Screening Methodology**	**Current Shariah Screening Methodology**
Business activity benchmarks	5% 20%	5% 10% 20% 25%
Financial ratio benchmarks	33%	Not Applicable

Business Activity Benchmarks

The 5% benchmark would be applicable to the following business activities:

- conventional banking;
- conventional insurance;
- gambling;
- liquor and liquor-related activities;
- pork and pork-related activities;
- non-halal food and beverages;
- Shariah non-compliant entertainment;
- interest income from conventional accounts and instruments;
- tobacco and tobacco-related activities; and
- other activities deemed non-compliant according to Shariah.

The 20% benchmark would be applicable to the following activities:

- hotel and resort operations;
- share trading;
- stockbroking business;

- rental received from Shariah non-compliant activities; and
- other activities deemed non-compliant according to Shariah.

The contribution of Shariah non-compliant activities to the overall revenue and profit before tax of the company will be calculated and compared against the relevant business activity benchmarks.

Note: Current Shariah screening methodology:

Benchmark	Activity
5%	Conventional banking; Conventional insurance; Gambling; Liquor and liquor-related activities; Pork and pork-related activities; Non-halal food and beverages; Shariah non-compliant entertainment; and other activities deemed non-compliant according to Shariah
10%	Interest income from conventional accounts and instruments; Tobacco and tobacco-related activities; and other activities deemed non-compliant according to Shariah
20%	Rental received from Shariah non-compliant activities; and other activities deemed non-compliant according to Shariah
25%	Hotel and resort operations; Share trading; Stockbroking business; and other activities deemed non-compliant according to Shariah

Financial Ratio Benchmarks

The financial ratios applied are as follows:

i)	**Cash over Total Assets**
	Cash will only include cash placed in conventional accounts and instruments, whereas cash placed in Islamic accounts and instruments will be excluded from the calculation.
ii)	**Debt over Total Assets**
	Debt will only include interest-bearing debt whereas Islamic debt/financing or sukuk will be excluded from the calculation. Both ratios, which are intended to measure riba and riba-based elements within a company's balance sheet, must be lower than 33%.

3. What is the primary implication of the revised screening methodology?

The streamlining of the business activity benchmarks and the inclusion of the financial ratio benchmarks will enhance the robustness of the screening methodology for listed securities and, in turn, is expected to bolster the competitiveness of the Malaysian Islamic equity market and Islamic fund management industry.

4. How does the revised methodology affect the Shariah-compliant status of listed companies?

The Shariah-compliant status of the company may be affected in the following manner:

- Companies with mixed activities which are currently assessed under the 10% or 25% benchmarks may be affected because their activities are now assessed under the 5% or 20% benchmarks.

  Example:

1.	Company A listed on Main Market, Bursa Malaysia Business activities: Property development, trading of building materials and manufacture and distribution of cigarettes (tobacco)	Shariah non-compliant activity	Current methodology [10% benchmark]	Revised methodology [5% benchmark]
		Tobacco's revenue / Group revenue = 9%	Status : Shariah-compliant	Status: Shariah non-compliant

- Companies with high level of conventional debt may be affected as currently there is no screening based on the total conventional debt of the company.
  Example:

2.	Company B listed on Main Market, Bursa Malaysia Business activities: Property development, trading of building materials and construction works	Level of conventional debt	Current methodology [Not applicable]	Revised methodology [33% benchmark]
		Total conventional debt / Group total asset = 36%	Status : Shariah-compliant	Status: Shariah non-compliant

5. When is the effective date?

The outcome of the revised methodology will be reflected in the List of Shariah-compliant Securities by the SC's SAC effective from November 2013.To ensure a smooth transition under the revised methodology, investors are given six months[9] from the effective date of the List of Shariah-compliant Securities on 29 November 2013 to dispose of securities that are excluded from the list, in the event that the respective market price of such securities exceeds or is equal to the investment cost. During the six-months period, dividends received and capital gain realised from the disposal of such securities may be retained by investors, without the need to channel any portion of the dividends and capital gains to *Baitulmal* and/or charitable bodies.

Note: Original investment cost may include brokerage cost or other related transaction costs.

[9] Collective investment schemes and other funds approved by the SC as Shariah-compliant are advised to follow the existing SAC guidance for the disposal of Shariah non-compliant securities after the end of the six-month grace period.

Source: http://www.sc.com.my/frequently-asked-questions-on-revised-shariah-screening-methodology/

Appendix E: Hadith narrated by Al-Bukhari and Muslim

The SAC considered a number of benchmarks as a basis that can be considered as *ihtiyat* (precautionary measure) that gives caution in classifying a mixed company under the permissible category as stated by Ibnu Subki in *al-Asybah wa al-Naza'ir*, that is, "to rule as prohibited something that is a mix of the permissible and the prohibited is *ihtiyat* and it is not necessarily prohibited."[357]

The SAC took into account additional elements like *maslahah*, *`umum balwa*, *`urf khas min asalib iqtisodiyah*,[358] *fasad al-zaman* and *huquq ghair muslimin*.[359] The SAC also looked at numerous *fatwa* (religious edict from a qualified scholar) which have become exceptions to the maxim إذا اجتمع الحلال و الحرام غلب الحرام which means, if there is a mix of the permissible and the prohibited, then it is ruled as prohibited.

For example, the mixing of slaughtered animals by Muslims and the Majusi is ruled to be totally prohibited.[360] This *fatwa* is in line with the maxim إذا اجتمع الحلال و الحرام غلب الحرام because such a mixed item is prohibited in essence. Whereas if the essence of such an item is not prohibited, but is prohibited for other reasons, then it needs to be scrutinised differently.

Source: Resolutions of the Securities Commission Shariah Advisory Council

(The Hadith, pp. Sahih Bukhari, Book 59, Hadith Number 693).

Appendix F: Heteroskedasticity Test: Breusch-Pagan-Godfrey

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	5.406102	Prob. F(13,396)	0.0000
Obs*R-squared	61.79670	Prob. Chi-Square(13)	0.0000
Scaled explained SS	301.4551	Prob. Chi-Square(13)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 09/27/17 Time: 13:24
Sample: 1 410
Included observations: 410

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5200.016	2530.603	2.054853	0.0405
GOP	-0.457600	5.382044	-0.085023	0.9323
BEQ	69.87160	46.04908	1.517329	0.1300
BUMI Δ	-852.2476	455.9448	-1.869190	0.0623
DSHARIAH	433.9346	469.5879	0.924075	0.3560
SHARIAH Δ	46.00713	646.6616	0.071146	0.9433
CASH	-25.48283	11.33651	-2.247856	0.0251
DEBT	-11.97539	8.371057	-1.430571	0.1533
MKTCON	-1644.272	4472.385	-0.367650	0.7133
RETAIL	-37.45613	15.38926	-2.433913	0.0154
DRETURN	852.1126	287.8983	2.959769	0.0033
SIZE	-141.5203	153.9801	-0.919082	0.3586
DBOARD	-1524.941	424.5571	-3.591840	0.0004
DCRISIS	-1009.823	580.1523	-1.740617	0.0825

R-squared	0.150724	Mean dependent var	922.8541
Adjusted R-squared	0.122843	S.D. dependent var	2988.103
S.E. of regression	2798.557	Akaike info criterion	18.74515
Sum squared resid	3.10E+09	Schwarz criterion	18.88228
Log likelihood	-3828.755	Hannan-Quinn criter.	18.79940
F-statistic	5.406102	Durbin-Watson stat	1.810459
Prob(F-statistic)	0.000000		

Appendix G: Descriptive Statistics of 422 IPOs with outlier

	OSR (times)	GOP (%)	BEQ (%)	BUMI Δ	DSHARIAH	SHARIAH Δ	CASH (%)	DEBT (%)	MKTCON	RETAIL (%)	DRETURN	LNSIZE	DBOARD	DCRISIS
Mean	31.55	39.87	5.68	0.21	0.89	0.07	14.15	42.36	0.01	21.68	0.41	17.17	0.68	0.06
Median	16.67	43.70	4.28	-	1.00	-	10.85	41.62	0.01	16.67	-	16.89	1.00	-
Maximum	377.96	94.96	30.00	1.00	1.00	1.00	99.22	168.33	0.11	100.00	1.00	23.25	1.00	1.00
Minimum	(0.89)	-	-	-	-	-	-	1.25	(0.08)	-	-	14.69	-	-
Std. Dev.	46.96	27.79	6.35	0.41	0.31	0.26	13.49	20.72	0.03	18.63	0.49	1.25	0.47	0.24
Skewness	3.57	(0.10)	1.31	1.43	(2.54)	3.26	2.13	0.86	0.07	1.72	0.38	1.78	(0.75)	3.64
Kurtosis	19.04	1.82	4.27	3.04	7.45	11.63	9.93	6.11	3.74	5.68	1.14	7.34	1.57	14.22
Jarque-Bera	5,397.26	25.20	147.49	142.67	798.80	2,046.73	1,157.49	221.98	10.05	333.22	70.36	551.97	75.63	3,128.37
Probability	-	0.00	-	-	-	-	-	-	0.01	-	-	-	-	-
Sum	13,250.76	16,744.15	2,387.45	88.00	375.00	31.00	5,944.24	17,791.31	2.90	9,107.14	171.00	7,213.36	284.00	26.00
Sum Sq. Dev.	924,064.20	323,692.20	16,881.68	69.56	40.18	28.71	76,210.72	179,888.10	0.42	145,501.10	101.38	649.98	91.96	24.39
Observations	422	422	422	422	422	422	422	422	422	422	422	422	422	422

Appendix H: Regression Results of 422 IPOs with outlier

Dependent Variable: OSR__TIMES_
Method: Least Squares
Date: 09/27/17 Time: 13:21
Sample: 1 410
Included observations: 410

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GOP	0.080804	0.059446	1.359284	0.1748
BEQ	1.094161	0.508625	2.151214	0.0321
BUMI Δ	-13.16460	5.036037	-2.614079	0.0093
DSHARIAH	6.403848	5.186729	1.234660	0.2177
SHARIAH Δ	8.131749	7.142558	1.138493	0.2556
CASH	-0.274221	0.125215	-2.190000	0.0291
DEBT	-0.156395	0.092461	-1.691481	0.0915
MKTCON	115.7837	49.39873	2.343859	0.0196
RETAIL	-0.532198	0.169979	-3.130970	0.0019
DRETURN	8.754067	3.179917	2.752923	0.0062
SIZE	-4.353997	1.700753	-2.560041	0.0108
DBOARD	-19.80472	4.689351	-4.223339	0.0000
DCRISIS	-17.67281	6.407943	-2.757954	0.0061
C	121.5536	27.95121	4.348777	0.0000

R-squared	0.250781	Mean dependent var	27.52403
Adjusted R-squared	0.226185	S.D. dependent var	35.13924
S.E. of regression	30.91084	Akaike info criterion	9.733641
Sum squared resid	378370.2	Schwarz criterion	9.870778
Log likelihood	-1981.396	Hannan-Quinn criter.	9.787896
F-statistic	10.19619	Durbin-Watson stat	1.801941
Prob(F-statistic)	0.000000		

Appendix I: Comparison of the Mean Values High and Low Demand IPOs

Group Statistics

	dummy	N	Mean	Std. Deviation	Std. Error Mean
OSR (times)	1	205	48.78	39.31	2.75
	0	205	6.27	4.73	0.33
GOP (%)	1	205	44.43	25.49	1.78
	0	205	34.76	29.35	2.05
BEQ (%)	1	205	5.11	6.36	0.44
	0	205	6.47	6.34	0.44
BUMI Δ	1	205	0.15	0.35	0.03
	0	205	0.26	0.44	0.03
DShariah	1	205	0.93	0.26	0.02
	0	205	0.87	0.34	0.02
DShariah Δ	1	205	0.07	0.25	0.02
	0	205	0.08	0.27	0.02
CASH (%)	1	205	13.70	12.91	0.90
	0	205	14.04	12.73	0.89
DEBT (%)	1	205	37.92	18.43	1.29
	0	205	45.45	18.50	1.29
MKTCON	1	205	0.01	0.03	0.00
	0	205	0.00	0.03	0.00
RETAIL (%)	1	205	20.82	18.34	1.28
	0	205	23.31	18.99	1.33
IR (%)	1	205	40.23	51.37	3.59
	0	205	13.05	37.31	2.61
SIZE (*ln*)	1	205	16.80	0.83	0.06
	0	205	17.56	1.46	0.10
DBOARD	1	205	0.57	0.50	0.04
	0	205	0.80	0.40	0.03
DCRISIS	1	205	0.03	0.18	0.01
	0	205	0.09	0.29	0.02

Appendix J: The independent t-test (parametric)

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
OSR (times)	Equal variances assumed	11.15	0.00	3.56	408.00	0.00	9.67	2.72	4.34	15.01
	Equal variances not assumed			3.56	400.15	0.00	9.67	2.72	4.34	15.01
GOP (%)	Equal variances assumed	111.74	0.00	15.37	408.00	0.00	42.51	2.77	37.08	47.95
	Equal variances not assumed			15.37	209.92	0.00	42.51	2.77	37.06	47.96
BEQ (%)	Equal variances assumed	0.16	0.68	-2.16	408.00	0.03	-1.36	0.63	-2.59	-0.12
	Equal variances not assumed			-2.16	408.00	0.03	-1.36	0.63	-2.59	-0.12
BUMI Δ	Equal variances assumed	36.78	0.00	-2.96	408.00	0.00	-0.12	0.04	-0.19	-0.04
	Equal variances not assumed			-2.96	389.71	0.00	-0.12	0.04	-0.19	-0.04
DShariah	Equal variances assumed	15.86	0.00	1.96	408.00	0.05	0.06	0.03	0.00	0.12
	Equal variances not assumed			1.96	383.00	0.05	0.06	0.03	0.00	0.12
DShariah Δ	Equal variances assumed	0.57	0.45	-0.38	408.00	0.71	-0.01	0.03	-0.06	0.04
	Equal variances not assumed			-0.38	406.47	0.71	-0.01	0.03	-0.06	0.04
CASH (%)	Equal variances assumed	0.08	0.78	-0.27	408.00	0.78	-0.35	1.27	-2.84	2.14
	Equal variances not assumed			-0.27	407.92	0.78	-0.35	1.27	-2.84	2.14

DEBT (%)	Equal variances assumed	0.14	0.71	-4.13	408.00	0.00	-7.53	1.82	-11.12	-3.94
	Equal variances not assumed			-4.13	407.99	0.00	-7.53	1.82	-11.12	-3.94
MKTCON	Equal variances assumed	1.56	0.21	3.99	408.00	0.00	0.01	0.00	0.01	0.02
	Equal variances not assumed			3.99	395.61	0.00	0.01	0.00	0.01	0.02
RETAIL (%)	Equal variances assumed	0.17	0.68	-1.35	408.00	0.18	-2.50	1.84	-6.12	1.13
	Equal variances not assumed			-1.35	407.51	0.18	-2.50	1.84	-6.12	1.13
IR (%)	Equal variances assumed	21.45	0.00	6.13	408.00	0.00	27.18	4.43	18.47	35.90
	Equal variances not assumed			6.13	372.38	0.00	27.18	4.43	18.46	35.90
SIZE (*ln*)	Equal variances assumed	33.17	0.00	-6.52	408.00	0.00	-0.76	0.12	-0.99	-0.53
	Equal variances not assumed			-6.52	322.38	0.00	-0.76	0.12	-0.99	-0.53
DBOARD	Equal variances assumed	94.32	0.00	-5.15	408.00	0.00	-0.23	0.04	-0.32	-0.14
	Equal variances not assumed			-5.15	390.79	0.00	-0.23	0.04	-0.32	-0.14
DCRISIS	Equal variances assumed	25.25	0.00	-2.44	408.00	0.01	-0.06	0.02	-0.11	-0.01
	Equal variances not assumed			-2.44	342.68	0.02	-0.06	0.02	-0.11	-0.01

Appendix K: The independent Mann-Whitney U test (non-parametric)

Test Statistics[a]

	OSR (times)	GOP (%)	BEQ (%)	DBUMI	DShariah	DShariah Δ	MKTCON	RETAIL (%)	IR (%)	SIZE (ln)	DBOARD	DCRISIS
Mann-Whitney U	-	16,976.50	17,557.00	18,552.50	19,782.50	20,807.50	16,611.00	18,442.50	11,840.00	13,661.50	16,195.00	19,782.50
Wilcoxon W	21,115.00	38,091.50	38,672.00	39,667.50	40,897.50	41,922.50	37,726.00	39,557.50	32,955.00	34,776.50	37,310.00	40,897.50
Z	-17.51	-3.38	-2.94	-2.93	-1.95	-.38	-3.67	-2.14	-7.65	-6.13	-4.99	-2.43
Asymp. Sig. (2-tailed)	.00	.00	.00	.00	.05	.70	.00	.03	.00	.00	.00	.02

a. Grouping Variable: dummy

Appendix L: Results from Ordinary Least Square Regression (OLS)

Dependent Variable: OSR__TIMES_
Method: Least Squares
Date: 11/20/17 Time: 10:00
Sample: 1 410
Included observations: 410
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 6.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
__GOP___PROCEEDS	0.083464	0.049229	1.695436	0.0908
RATIO_BUMI_SECOND	1.115725	0.370713	3.009672	0.0028
DBUMI_CHANGES	-13.19762	4.600609	-2.868669	0.0043
DSHARIAH	6.170890	3.264321	1.890406	0.0594
DSHARIAH_CHANGES	8.218967	3.987310	2.061281	0.0399
__CASH_TA	-0.272110	0.124984	-2.177160	0.0301
__DEBT_TA	-0.152988	0.070477	-2.170760	0.0305
DMECHANISM	2.975234	5.071712	0.586633	0.5578
_3_MKTCON_PRIOR_LISTING	114.2608	44.37031	2.575164	0.0104
RETAIL_OFFERING____	-0.542018	0.148691	-3.645255	0.0003
DUMMY_IR	8.649431	2.875171	3.008319	0.0028
LN_OFFER_SIZE	-4.855902	1.777825	-2.731373	0.0066
DBOARD	-19.50525	5.313537	-3.670860	0.0003
DCRISIS	-17.53828	4.076342	-4.302456	0.0000
C	129.8452	30.39468	4.271973	0.0000

R-squared	0.250990	Mean dependent var	27.52403
Adjusted R-squared	0.224443	S.D. dependent var	35.13924
S.E. of regression	30.94563	Akaike info criterion	9.738240
Sum squared resid	378264.6	Schwarz criterion	9.885173
Log likelihood	-1981.339	Hannan-Quinn criter.	9.796370
F-statistic	9.454487	Durbin-Watson stat	1.836232
Prob(F-statistic)	0.000000	Wald F-statistic	7.461780
Prob(Wald F-statistic)	0.000000		

Appendix M: Result from Interaction Effect of Pricing Mechanism

Dependent Variable: OSR__TIMES_
Method: Least Squares
Date: 11/20/17 Time: 10:01
Sample: 1 410
Included observations: 410
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 6.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
__GOP___PROCEEDS	0.081817	0.049198	1.663005	0.0971
RATIO_BUMI_SECOND	1.128234	0.376157	2.999368	0.0029
DBUMI_CHANGES	-13.57259	4.597461	-2.952192	0.0033
DSHARIAH	5.558488	3.290676	1.689163	0.0920
DSHARIAH_CHANGES	8.334063	3.949358	2.110232	0.0355
__CASH_TA	-0.261660	0.125599	-2.083303	0.0379
__DEBT_TA	-0.151880	0.070805	-2.145059	0.0326
DMECHANISM	-76.51221	35.51996	-2.154062	0.0318
_3_MKTCON_PRIOR_LISTING	114.8857	44.44798	2.584722	0.0101
RETAIL_OFFERING____	-0.555159	0.151840	-3.656209	0.0003
DUMMY_IR	8.440433	2.872816	2.938034	0.0035
LN_OFFER_SIZE	-5.633357	2.089211	-2.696404	0.0073
DBOARD	-18.85670	5.392247	-3.497002	0.0005
DCRISIS	-17.03090	4.034614	-4.221197	0.0000
DMECHANISM*LN_OFFER_SIZE	4.031521	1.962853	2.053909	0.0406
C	143.3523	35.70721	4.014661	0.0001

R-squared	0.252235	Mean dependent var	27.52403
Adjusted R-squared	0.223766	S.D. dependent var	35.13924
S.E. of regression	30.95912	Akaike info criterion	9.741455
Sum squared resid	377636.1	Schwarz criterion	9.898183
Log likelihood	-1980.998	Hannan-Quinn criter.	9.803461
F-statistic	8.860218	Durbin-Watson stat	1.838944
Prob(F-statistic)	0.000000	Wald F-statistic	8.140025
Prob(Wald F-statistic)	0.000000		

Appendix N: List of 410 IPOs listed during the period 2000 to 2015

NO.	NAME OF COMPANY	LISTING DATE
1	NIKKO ELECTRONICS BHD	12-Jan-00
2	TOMISHO HOLDINGS BHD	8-Mar-00
3	HUNZA PROPERTIES BHD	23-Mar-00
4	JIN LIN WOOD INDUSTRIES BHD	27-Mar-00
5	LTKM BHD	28-Mar-00
6	POH HUAT RESOURCES HOLDINGS BHD	29-Mar-00
7	QL RESOURCES BHD	30-Mar-00
8	MAGNI-TECH INDUSTRIES BHD	18-Apr-00
9	ANALABS RESOURCES BHD	24-Apr-00
10	UNICO-DESA PLANTATIONS BHD	25-May-00
11	JPK HOLDINGS BHD	26-May-00
12	GLOMAC BHD	13-Jun-00
13	TAT SANG HOLDINGS BHD	19-Jun-00
14	APEX HEALTHCARE BHD	26-Jun-00
15	UNIMECH GROUP BHD	27-Jun-00
16	P.I.E INDUSTRIAL BHD	7-Jul-00
17	EUROSPAN HOLDINGS BHD	10-Jul-00
18	UCHI TECHONOLOGIES BHD	19-Jul-00
19	FOREMOST HOLDINGS BHD	1-Aug-00
20	GPA HOLDINGS BHD	3-Aug-00
21	SUPERMAX CORPORATION BHD	7-Aug-00
22	PAOS HOLDINGS BHD	8-Aug-00
23	MEGAN MEDIA HOLDINGS BHD	8-Aug-00
24	JOTECH HOLDINGS BHD	9-Aug-00
25	ORIENTAL FOOD INDUSTRIES HOLDINGS BHD	10-Aug-00
26	TA WIN HOLDINGS BHD	15-Aug-00
27	PETRA PERDANA BHD	16-Aug-00
28	NV MULTI CORPORATION BHD	23-Aug-00
29	SPRITZER BHD	1-Sep-00
30	COURTS MAMMOTH BHD	11-Oct-00
31	HUP SENG INDUSTRIES BHD	2-Nov-00
32	NWP HOLDINGS BHD	3-Nov-00
33	OCTAGON CONSOLIDATED BHD	8-Nov-00
34	HEITECH PADU BHD	20-Nov-00
35	HAISAN RESOURCES BERHAD	16-Jan-01
36	RANHILL BERHAD	15-Feb-01
37	WEIDA (M) BERHAD	28-Feb-01
38	INGRESS CORPORATION BERHAD	9-Mar-01
39	TOP GLOVE CORPORATION BERHAD	27-Mar-01
40	SKB SHUTTERS CORPORATION BERHAD	28-Mar-01
41	MERGE HOUSING BERHAD	14-May-01
42	KNUSFORD BERHAD	23-May-01
43	EDARAN DIGITAL SYSTEMS BERHAD	6-Jun-01
44	AIKBEE RESOURCES BERHAD	22-Jun-01
45	DEGEM BERHAD	10-Oct-01
46	LIPO CORPORATION BERHAD	22-Oct-01
47	ACOUSTECH BERHAD	27-Nov-01
48	XIAN LENG HOLDINGS BERHAD	5-Dec-01
49	PJI HOLDINGS BERHAD	12-Dec-01
50	PRICEWORTH WOOD PRODUCTS BERHAD	31-Dec-01
51	EMIVEST BERHAD	23-Jan-02
52	LONDON BISCUITS BERHAD	31-Jan-02
53	KSL HOLDINGS BERHAD	6-Feb-02
54	UNITED KOTAK BERHAD	18-Mar-02
55	MEDA INC. BERHAD	19-Mar-02
56	KUMPULAN POWERNET BERHAD	22-Mar-02
57	BANENG HOLDINGS BHD	25-Mar-02

58	SDKM FIBRES, WIRES & CABLES BERHAD	2-Apr-02
59	PUC FOUNDER (MSC) BERHAD	3-Apr-02
60	SMIS CORPORATION BERHAD	16-Apr-02
61	PBA HOLDINGS BHD	18-Apr-02
62	UNITED U-LI CORPORATION BERHAD	23-Apr-02
63	HOCK SIN LEONG GROUP BERHAD	2-May-02
64	YI-LAI BERHAD	3-May-02
65	NPC RESOURCES BERHAD	7-May-02
66	COUNTRY VIEW BERHAD	29-May-02
67	BSA INTERNATIONAL BERHAD	30-May-02
68	PIN-WEE GROUP BERHAD	3-Jun-02
69	YIKON CORPORATION BERHAD	3-Jun-02
70	OKA CORPORATION BHD	4-Jun-02
71	SILVER BIRD GROUP BERHAD	6-Jun-02
72	RANHILL UTILITIES BERHAD	14-Jun-02
73	STONE MASTER CORPORATION BERHAD	1-Jul-02
74	HUAT LAI RESOURCES BERHAD	3-Jul-02
75	MAXIS COMMUNICATIONS BERHAD	8-Jul-02
76	AE MULTI HOLDINGS BERHAD	15-Jul-02
77	DUOPHARMA BIOTECH BHD	18-Jul-02
78	TRACOMA HOLDINGS BERHAD	24-Jul-02
79	IRIS CORPORATION BERHAD	25-Jul-02
80	BRITE-TECH BERHAD	30-Jul-02
81	ENGTEX GROUP BERHAD	2-Aug-02
82	TRC SYNERGY BERHAD	6-Aug-02
83	ATIS CORPORATION BERHAD	7-Aug-02
84	VADS BERHAD	7-Aug-02
85	ENG KAH CORPORATION BERHAD	9-Aug-02
86	THREE-A RESOURCES BERHAD	13-Aug-02
87	BINAIK EQUITY BHD	15-Aug-02
88	YEO AIK RESOURCES BERHAD	30-Oct-02
89	HYTEX INTEGRATED BERHAD	8-Nov-02
90	KINSTEEL BERHAD	25-Nov-02
91	HUA YANG BERHAD	29-Nov-02
92	PULAI SPRINGS BERHAD	9-Dec-02
93	ISYODA CORPORATION BERHAD	18-Dec-02
94	ORNAPAPER BERHAD	29-Jan-03
95	BASWELL RESOURCES BERHAD	30-Jan-03
96	SKP RESOURCES BERHAD	10-Feb-03
97	SYMPHONY HOUSE BERHAD	14-Feb-03
98	UBS CORPORATION BERHAD	26-Mar-03
99	GHL SYSTEMS BERHAD	9-Apr-03
100	CYL CORPORATION BERHAD	21-Apr-03
101	SCOMI GROUP BERHAD	13-May-03
102	KL INFRASTRUCTURE GROUP BERHAD	28-May-03
103	PARADE SEASON BERHAD	18-Jun-03
104	ASTINO BERHAD	18-Jul-03
105	BLD PLANTATION BERHAD	21-Jul-03
106	PENTAMASTER CORPORATION BERHAD	23-Jul-03
107	INFORTECH ALLIANCE BERHAD	28-Jul-03
108	LNG RESOURCES BERHAD	29-Jul-03
109	APP INDUSTRIES BERHAD	6-Aug-03
110	ENGLOTECHS HOLDINGS BERHAD	7-Aug-03
111	PROTASCO BERHAD	8-Aug-03
112	KNM GROUP BERHAD	11-Aug-03
113	COASTAL CONTRACTS BERHAD	13-Aug-03
114	PEMBINAAN JAYABUMI (SARAWAK) BERHAD	14-Aug-03
115	NOVA MSC BERHAD	19-Aug-03
116	LUSTER INDUSTRIES BERHAD	11-Sep-03

117	NAIM CENDERA HOLDINGS BERHAD	12-Sep-03
118	FURNIWEB INDUSTRIAL PRODUCTS BERHAD	16-Oct-03
119	DOMINANT ENTERPRISE BERHAD	20-Oct-03
120	CENTURY BOND BERHAD	23-Oct-03
121	LFE CORPORATION BERHAD	27-Oct-03
122	JOHORE TIN BERHAD	31-Oct-03
123	PMB TECHNOLOGY BERHAD	5-Nov-03
124	DIGISTAR CORPORATION BERHAD	7-Nov-03
125	TOYO INK GROUP BERHAD	10-Nov-03
126	EBWORX BERHAD	17-Nov-03
127	PLENITUDE BERHAD	18-Nov-03
128	MALAYSIAN BULK CARRIERS BERHAD	2-Dec-03
129	JSPC I-SOLUTIONS BERHAD	3-Dec-03
130	POLY TOWER VENTURES BERHAD	15-Dec-03
131	TPC PLUS BERHAD	18-Dec-03
132	FTEC RESOURCES BERHAD	19-Dec-03
133	KBES BERHAD	19-Dec-03
134	CAB CAKARAN CORPORATION BERHAD	22-Dec-03
135	DVM TECHNOLOGY BERHAD	2-Jan-04
136	LCL CORPORATION BERHAD	8-Jan-04
137	Y.S.P. SOUTHEAST ASIA HOLDING BERHAD	12-Jan-04
138	DREAMGATE CORPORATION BERHAD	13-Jan-04
139	PLASTRADE TECHNOLOGY BERHAD	15-Jan-04
140	ASIAEP BERHAD	16-Jan-04
141	D.B.E. GURNEY RESOURCES BERHAD	11-Feb-04
142	SERN KOU RESOURCES BERHAD	12-Feb-04
143	IRE-TEX CORPORATION BERHAD	18-Feb-04
144	KEJURUTERAAN SAMUDRA TIMUR BERHAD	19-Feb-04
145	KBB RESOURCES BERHAD	24-Feb-04
146	G.A BLUE INTERNATIONAL BERHAD	25-Feb-04
147	UDS CAPITAL BERHAD	12-Mar-04
148	CYMAO HOLDINGS BERHAD	18-Mar-04
149	EMAS KIARA INDUSTRIES BERHAD	30-Mar-04
150	BOON KOON GROUP BERHAD	8-Apr-04
151	SEAL POLYMER INDUSTRIES BERHAD	8-Apr-04
152	PELANGI PUBLISHING GROUP BERHAD	23-Apr-04
153	MUDAJAYA GROUP BERHAD	7-May-04
154	DK LEATHER CORPORATION BERHAD	21-May-04
155	GPRO TECHNOLOGIES BERHAD	2-Jun-04
156	IBRACO BERHAD	16-Jun-04
157	MYCRON STEEL BERHAD	21-Jun-04
158	ADVENTA BERHAD	25-Jun-04
159	UNREALMIND INTERACTIVE BERHAD	30-Jun-04
160	GOODWAY INTEGRATED INDUSTRIES BERHAD	12-Jul-04
161	DATASCAN BERHAD	19-Jul-04
162	HI-CITY BIOSCIENCE GROUP BERHAD	19-Jul-04
163	OCEANCASH PACIFIC BERHAD	21-Jul-04
164	VITZTEL SOLUTIONS BERHAD	22-Jul-04
165	MEMS TECHNOLOGY BERHAD	11-Aug-04
166	DPS RESOURCES BERHAD	12-Aug-04
167	COMINTEL CORPORATION BERHAD	16-Aug-04
168	KLCC PROPERTY HOLDINGS BERHAD	18-Aug-04
169	GE-SHEN CORPORATION BERHAD	8-Sep-04
170	KARYON INDUSTRIES BERHAD	15-Sep-04
171	KEIN HING INTERNATIONAL BERHAD	6-Oct-04
172	SERSOL TECHNOLOGIES BERHAD	12-Oct-04
173	SIN CHEW MEDIA CORPORATION BERHAD	18-Oct-04
174	TEK SENG HOLDINGS BERHAD	19-Oct-04
175	PROGRESSIVE IMPACT CORPORATION BERHAD	19-Oct-04

176	WANG-ZHENG BERHAD	21-Oct-04
177	PECD BERHAD	25-Oct-04
178	CLASSIC SCENIC BERHAD	26-Oct-04
179	LCTH CORPORATION BERHAD	27-Oct-04
180	GRAND-FLO SOLUTION BERHAD	3-Nov-04
181	MODULAR TECHCORP HOLDINGS BERHAD	8-Nov-04
182	AIRASIA BERHAD	22-Nov-04
183	JOBSTREET CORPORATION BERHAD	29-Nov-04
184	M-MODE BERHAD	2-Dec-04
185	IMPRESSIVE EDGE GROUP BERHAD	8-Dec-04
186	THE MEDIA SHOPPE BERHAD	8-Dec-04
187	TRICUBES BERHAD	15-Dec-04
188	DIS TECHNOLOGY HOLDINGS BERHAD	16-Dec-04
189	FAST TRACK SOLUTION HOLDINGS BERHAD	20-Dec-04
190	EXCEL FORCE MSC BERHAD	21-Dec-04
191	D&O VENTURES BERHAD	28-Dec-04
192	ORNASTEEL HOLDINGS BERHAD	30-Dec-04
193	EFFICIENT E-SOLUTIONS BERHAD	10-Jan-05
194	HEVEABOARD BERHAD	10-Jan-05
195	ECOFUTURE BERHAD	11-Jan-05
196	ASDION BERHAD	12-Jan-05
197	COCOALAND HOLDINGS BERHAD	18-Jan-05
198	CHEETAH HOLDINGS BERHAD	19-Jan-05
199	SUCCESS TRANSFORMER CORPORATION BHD	19-Jan-05
200	EURO HOLDINGS BERHAD	25-Jan-05
201	MQ TECHNOLOGY BERHAD	26-Jan-05
202	FOTRONICS CORPORATION BERHAD	31-Jan-05
203	FREIGHT MANAGEMENT HOLDINGS BERHAD	3-Feb-05
204	TAFI INDUSTRIES BERHAD	4-Feb-05
205	MALAYSIA STEEL WORKS (KL) BERHAD	7-Feb-05
206	AT SYSTEMATIZATION BERHAD	23-Feb-05
207	BP PLASTICS HOLDINGS BERHAD	23-Feb-05
208	EVERGREEN FIBREBOARD BERHAD	10-Mar-05
209	SATANG JAYA HOLDINGS BERHAD	16-Mar-05
210	HOVID BERHAD	5-Apr-05
211	GUAN CHONG BERHAD	8-Apr-05
212	MEXTER TECHNOLOGY BERHAD	12-Apr-05
213	KANNALTEC BERHAD	4-May-05
214	A-RANK BERHAD	11-May-05
215	GD EXPRESS CARRIER BERHAD	17-May-05
216	EQUATOR LIFE SCIENCE BERHAD	25-May-05
217	GREEN PACKET BERHAD	25-May-05
218	TANJUNG OFFSHORE BERHAD	26-May-05
219	RUBY QUEST BERHAD	30-May-05
220	TECHFAST HOLDINGS BERHAD	6-Jun-05
221	NOTION VTEC BERHAD	6-Jun-05
222	TITAN CHEMICALS CORPORATION BERHAD	23-Jun-05
223	YGL CONVERGENCE BERHAD	13-Jul-05
224	MTOUCHE TECHNOLOGY BERHAD	21-Jul-05
225	MINETECH RESOURCES BERHAD	22-Jul-05
226	DAYA MATERIALS BERHAD	25-Jul-05
227	INS BIOSCIENCE BERHAD	26-Jul-05
228	TEX CYCLE TECHNOLOGY (M) BERHAD	27-Jul-05
229	NI HSIN RESOURCES BERHAD	28-Jul-05
230	CAN-ONE BERHAD	29-Jul-05
231	SOLUTION ENGINEERING HOLDINGS BERHAD	1-Aug-05
232	ELSOFT RESEARCH BERHAD	2-Aug-05
233	EB CAPITAL BERHAD	2-Aug-05
234	EONMETALL GROUP BERHAD	3-Aug-05

235	KAWAN FOOD BERHAD	8-Aug-05
236	IRM GROUP BERHAD	10-Aug-05
237	MLABS SYSTEMS BERHAD	19-Aug-05
238	KEY WEST GLOBAL TELECOMMUNICATIONS BHD	23-Aug-05
239	NEXTNATION COMMUNICATION BERHAD	26-Aug-05
240	INIX TECHNOLOGIES HOLDINGS BERHAD	1-Sep-05
241	BORNEO AQUA HARVEST BERHAD	5-Sep-05
242	VITROX CORPORATION BERHAD	12-Sep-05
243	SCICOM (MSC) BERHAD	26-Sep-05
244	ES CERAMICS TECHNOLOGY BERHAD	28-Sep-05
245	TMC LIFE SCIENCES BERHAD	6-Oct-05
246	IQ GROUP HOLDINGS BERHAD	10-Oct-05
247	CONNECTCOUNTY HOLDINGS BERHAD	20-Oct-05
248	M N C WIRELESS BERHAD	25-Oct-05
249	ASIA POLY HOLDINGS BERHAD	26-Oct-05
250	GENETEC TECHNOLOGY BERHAD	7-Nov-05
251	BSL CORPORATION BERHAD	15-Nov-05
252	REXIT BERHAD	16-Nov-05
253	LITESPEED EDUCATION TECHNOLOGIES BERHAD	24-Nov-05
254	KZEN SOLUTIONS BERHAD	25-Nov-05
255	FLONIC HI-TEC BERHAD	29-Nov-05
256	INDUSTRI TEKNOLOGI MIKRO BERHAD	22-Dec-05
257	K-ONE TECHNOLOGY BERHAD	5-Jan-06
258	MMS VENTURES BERHAD	6-Jan-06
259	WIMEMS CORPORATION BERHAD	20-Jan-06
260	IMASPRO CORPORATION BERHAD	20-Jan-06
261	FOCUS DYNAMICS TECHNOLOGIES BERHAD	10-Feb-06
262	SMR TECHNOLOGIES BERHAD	13-Mar-06
263	ETI TECH CORPORATION BERHAD	28-Mar-06
264	VISDYNAMICS HOLDINGS BERHAD	13-Apr-06
265	ADVANCE INFORMATION MARKETING BERHAD	18-Apr-06
266	JADI IMAGING HOLDINGS BERHAD	20-Apr-06
267	AIROCOM TECHNOLOGY BERHAD	27-Apr-06
268	TH PLANTATIONS BERHAD	27-Apr-06
269	UMS-NEIKEN GROUP BERHAD	2-May-06
270	MICROLINK SOLUTIONS BERHAD	23-Jun-06
271	RIMBUNAN SAWIT BERHAD	28-Jun-06
272	TOMEI CONSOLIDATED BERHAD	12-Jul-06
273	JHM CONSOLIDATION BERHAD	13-Jul-06
274	WELLCALL HOLDINGS BERHAD	18-Jul-06
275	ALAM MARITIM RESOURCES BERHAD	20-Jul-06
276	SILVER RIDGE HOLDINGS BERHAD	21-Jul-06
277	BCT TECHNOLOGY BERHAD	21-Jul-06
278	ISS CONSULTING SOLUTIONS BERHAD	2-Aug-06
279	TECHNODEX BERHAD	23-Aug-06
280	SANICHI TECHNOLOGY BERHAD	7-Sep-06
281	SCAN ASSOCIATES BERHAD	6-Oct-06
282	SWEE JOO BERHAD	17-Oct-06
283	PUTRAJAYA PERDANA BERHAD	18-Oct-06
284	GREENYIELD BERHAD	20-Oct-06
285	KENCANA PETROLEUM BERHAD	15-Dec-06
286	RESINTECH BERHAD	27-Dec-06
287	MY E.G. SERVICES BHD	16-Jan-07
288	PANTECH GROUP HOLDINGS BHD	15-Feb-07
289	H-DISPLAYS (MSC) BHD	27-Feb-07
290	DUFU TECHNOLOGY CORP. BHD	28-Feb-07
291	TEJARI TECHNOLOGIES BHD	9-Mar-07
292	MELATI EHSAN HOLDINGS BHD	19-Mar-07
293	OGAWA WORLD BHD	18-Apr-07

294	SUPERLON HOLDINGS BHD	25-Apr-07
295	ZHULIAN CORPORATION BHD	27-Apr-07
296	NATURAL BIO RESOURCES BHD	14-May-07
297	HELP INTERNATIONAL CORPORATION BHD	22-May-07
298	DELEUM BHD	1-Jun-07
299	SCANWOLF CORPORATION BHD	16-Jul-07
300	SARAWAK PLANTATION BHD	28-Aug-07
301	COMPLETE LOGISTIC SERVICES BHD	30-Aug-07
302	VOIR HOLDINGS BHD	24-Oct-07
303	BHS INDUSTRIES BHD	20-Nov-07
304	BIO OSMO BHD	5-Dec-07
305	TRANS-ASIA SHIPPING CORP BHD	28-Dec-07
306	WINSUN TECHNOLOGIES BHD	22-Jan-08
307	SIGNATURE INTERNATIONAL BHD	24-Jan-08
308	KEY ASIC BHD	30-Jan-08
309	TFP SOLUTIONS BHD	22-Feb-08
310	SCGM BHD	28-Feb-08
311	SLP RESOURCES BHD	12-Mar-08
312	JF TECHNOLOGY BHD	16-Apr-08
313	HARTALEGA HOLDINGS BHD	17-Apr-08
314	DAYANG ENTERPRISE_HOLDINGS BHD	24-Apr-08
315	LUXCHEM CORP BHD	27-Jun-08
316	INNITY CORPORATION BHD	30-Jun-08
317	SEALINK INTERNATIONAL BHD	29-Jul-08
318	UZMA BHD	29-Jul-08
319	SUNZEN BIOTECH BHD	8-Oct-08
320	TEO SENG CAPITAL BHD	29-Oct-08
321	ASIA BIOENERGY TECHNOLOGIES	12-Dec-08
322	FIBON BERHAD	18-Dec-08
323	HANDAL RESOURCES BERHAD	30-Jul-09
324	TAS OFFSHORE BERHAD	28-Aug-09
325	HALEX HOLDINGS BERHAD	16-Sep-09
326	MUAR BAN LEE GROUP BERHAD	28-Oct-09
327	SINARIA CORPORATION BERHAD	12-Nov-09
328	TA GLOBAL BHD	23-Nov-09
329	KELINGTON GROUP BERHAD	25-Nov-09
330	DSC SOLUTIONS BERHAD	9-Dec-09
331	YOONG ONN CORPORATION BERHAD	23-Dec-09
332	HOMERITZ CORPORATION BERHAD	19-Feb-10
333	HOCK HENG STONE INDUSTRIES BHD	26-Mar-10
334	OVERSEA ENTERPRISE BERHAD	01-Apr-10
335	ECS ICT BERHAD	15-Apr-10
336	TURBO-MECH BERHAD	30-Apr-10
337	MASTERSKILL EDUCATION GROUP	18-May-10
338	SARAWAK CABLE BERHAD	25-May-10
339	SHIN YANG SHIPPING CORP BHD	23-Jun-10
340	KIMLUN CORPORATION BERHAD	29-Jun-10
341	EA HOLDINGS BERHAD	20-Jul-10
342	FOCUS POINT HOLDINGS BERHAD	27-Jul-10
343	IVORY PROPERTIES GROUP BERHAD	28-Jul-10
344	SCC HOLDINGS BERHAD	03-Aug-10
345	SIG GASES BERHAD	09-Aug-10
346	MSIAN GENOMICS RES CENTRE BHD	05-Oct-10
347	CYPARK RESOURCES BERHAD	15-Oct-10
348	GW PLASTICS HLDG BHD	18-Oct-10
349	PETRONAS CHEMICALS GROUP BHD	26-Nov-10
350	CAREPLUS GROUP BERHAD	06-Dec-10
351	ASIA MEDIA GROUP BERHAD	11-Jan-11
352	BENALEC HOLDINGS BERHAD	17-Jan-11

353	TAMBUN INDAH LAND BERHAD	18-Jan-11
354	K. SENG SENG CORPORATION BHD	19-Jan-11
355	CENTURY SOFTWARE HOLDINGS BHD	31-Jan-11
356	BERJAYA FOOD BERHAD	08-Mar-11
357	MANAGEPAY SYSTEMS BERHAD	15-Mar-11
358	APFT BERHAD	18-Mar-11
359	FOCUS LUMBER BERHAD	28-Apr-11
360	BOILERMECH HOLDINGS BHD	05-May-11
361	MCLEAN TECHNOLOGIES BERHAD	10-May-11
362	UOA DEVELOPMENT BERHAD	08-Jun-11
363	MSM MALAYSIA HOLDINGS BERHAD	28-Jun-11
364	EVERSENDAI CORPORATION BERHAD	01-Jul-11
365	OLDTOWN BERHAD	13-Jul-11
366	INARI BERHAD	19-Jul-11
367	BUMI ARMADA BERHAD	21-Jul-11
368	CATCHA MEDIA BERHAD	22-Jul-11
369	PETERLABS HOLDINGS BHD	26-Jul-11
370	PRESTARIANG BERHAD	27-Jul-11
371	iDIMENSION CONSOLIDATED BHD	11-Nov-11
372	SENTORIA GROUP BERHAD	23-Feb-12
373	EITA RESOURCES BERHAD	09-Apr-12
374	PESTECH INTERNATIONAL BERHAD	30-May-12
375	GAS MALAYSIA BERHAD	11-Jun-12
376	FELDA GLOBAL VENTURES HLDG BHD	28-Jun-12
377	OCK GROUP BERHAD	17-Jul-12
378	GABUNGAN AQRS BERHAD	31-Jul-12
379	DATASONIC GROUP BERHAD	03-Sep-12
380	ASTRO MALAYSIA HOLDINGS BERHAD	19-Oct-12
381	MATRIX CONCEPTS HOLDINGS BERHAD	28-May-13
382	LEON FUAT BERHAD	5-Jun-13
383	AIRASIA X BERHAD	10-Jul-13
384	ABM FUJIYA BERHAD	23-Jul-13
385	SONA PETROLEUM BERHAD	30-Jul-13
386	SOLID AUTOMOTIVE BERHAD	12-Sep-13
387	WESTPORTS HOLDINGS BERHAD	18-Oct-13
388	UMW OIL & GAS CORPORATION BERHAD	1-Nov-13
389	KAREX BERHAD	6-Nov-13
390	BERJAYA AUTO BERHAD ("BAUTO")	18-Nov-13
391	CARING PHARMACY GROUP BERHAD	19-Nov-13
392	TITIJAYA LAND BERHAD	27-Nov-13
393	KANGER INTERNATIONAL BERHAD	23-Dec-13
394	SCH GROUP BERHAD	23-Feb-14
395	ICON OFFSHORE BERHAD	25-Jun-14
396	ECONPILE HOLDINGS BERHAD	30-Jun-14
397	TANAH MAKMUR BERHAD	17-Jul-14
398	SASBADI HOLDINGS BERHAD	23-Jul-14
399	HENG HUAT RESOURCES GROUP BERHAD	25-Jul-14
400	CARIMIN PETROLEUM BERHAD	10-Nov-14
401	E.A. TECHNIQUE (M) BERHAD	11-Dec-14
402	ONLY WORLD GROUP HOLDINGS BERHAD	18-Dec-14
403	BIOALPHA HOLDINS BERHAD	14-Apr-15
404	MALAKOFF CORPORATION BERHAD	15-May-15
405	DOLPHIN INTERNATIONAL BERHAD	9-Jun-15
406	SEDANIA INNOVATOR BERHAD	29-Jun-15
407	XIN HWA HOLDINGS BERHAD	30-Jun-15
408	IKHMAS JAYA GROUP BERHAD	27-Jul-15
409	SUNWAY CONSTRUCTION GROUP BERHAD	28-Jul-15
410	KIM TECK CHEONG CONSOLIDATED BERHAD	25-Nov-15